

ABEL 1998 USER'S MANUAL

Prepared for:

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Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
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This manual is releasable in its entirety.

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MAILING LIST ADDITION FORM

If you would like to receive updated materials, and you work for a Federal, State or local government environmental agency, please fill out this form and send it to the address below. If you are a member of the public and would like to obtain these materials, contact the National Technical Information Service (NTIS) at 800/553-6847. OECA plans to put both the model and this User's Manual on its Web site. The address for EPA financial analysis models is: www.epa.gov/OECA/models. EPA has also established a helpline for Federal, State or local government users staffed by the contractor, Industrial Economics, Inc . The phone number is 888/326-6778, and the e-mail address is benabel@indecon.com.

NAME AND MAILING ADDRESS:

E-MAIL ADDRESS:

PHONE NUMBER:

Please mail the completed form to:

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In environmental enforcement cases, the defendant/respondent may claim an inability to pay the penalty or environmental expenditure sought by the U.S. Environmental Protection Agency (EPA). With the goal of providing fair and equitable treatment of the regulated community, EPA policy states that the violators' ability to pay should be considered when determining penalty amounts.¹ Inability to pay is identified as one circumstance of "compelling public concern" under which an enforcement case may be settled for less than the economic benefit of noncompliance.² EPA policy further explains that such settlements are allowed if "removal of the economic benefit would result in plant closings, bankruptcy, or other extreme financial burden, and there is an important public interest in allowing the firm to continue in business."³ Nevertheless, if a violator either refuses to comply, has a long history of previous similar violation, or has committed egregious violations, EPA reserves the right to seek penalties that might adversely impact a business.⁴

The ABEL model is designed as a screening tool to assist EPA in assessing a corporation's or partnership's ability to finance a civil penalty, new investments in pollution control equipment, non-Superfund environmental clean-up costs, and Superfund clean-up costs. For the purposes of this manual, these items are collectively referred to as "environmental expenditures." ABEL has been designed to evaluate a firm's claim regarding its ability to pay after the initial penalty has

¹ This policy is set forth in U.S. EPA, *Policy on Civil Penalties*, February 16, 1984, codified as PT. 1-1 in the General Enforcement Policy Compendium (previously codified as GM-21).

² U.S. EPA, *A Framework for Statute-Specific Approaches to Penalty Assessments*, February 16, 1984, Codified as PT. 1-2 in the General Enforcement Policy Compendium (previously codified as GM-22), pp.12-13.

³ *Ibid.*

⁴ U.S. EPA, *Guidance on Determining a Violator's Ability to Pay a Civil Penalty*, December 16, 1986, Codified as PT. 2-1 in the General Enforcement Policy Compendium (previously codified as GM-56).

been proposed.⁵ Given the violator's incentives to avoid large penalties and investments, many firms will initially claim inability to pay regardless of their financial health.⁶

ABEL is a sophisticated screening tool and, as such, is designed to be used principally in negotiations. The ABEL model is generally not intended for use at a trial or in an administrative hearing. If the Agency is going to present ability to pay testimony in these settings, the Agency will usually rely on an expert to provide an independent financial analysis. This independent financial analysis, while consistent with the principles of the ABEL model, may not necessarily be identical to the method used by ABEL.⁷

The ABEL model is part of an ongoing EPA effort to evaluate the financial health of entities involved in enforcement proceedings. In addition to ABEL, the Individual Ability to Pay Model, Indipay, has been developed to evaluate the financial condition of individuals held liable for environmental expenditures (e.g., sole proprietorships, partners). The Municipal Ability to Pay Model, Munipay, has been developed to evaluate the financial condition of towns, counties, and municipalities held liable for environmental expenditures. ABEL may also serve as an adjunct to other computer programs used for enforcement purposes, such as the BEN Model. BEN is used to calculate the economic benefits a violator derives from delaying or avoiding compliance with environmental statutes. As with any of these models, however, the results provided by ABEL must be interpreted in a manner consistent with the assumptions used within the model. The purpose of this manual is not only to help you operate the program, but also to help you understand the assumptions used within the program.

The type of analysis ABEL performs is often generically referred to as an "ability to pay" analysis because the program is analyzing a firm's ability to pay a penalty or an environmental expenditure. When interpreting the results of the ABEL analysis, it is important to understand what is meant by ability to pay, as there is no strict definition in an economic or financial sense. A firm's ability to finance environmental penalties or expenditures depends on the level of financial distress one is willing to impose on the firm. For instance, a very simple measure of a firm's ability to pay might be how much cash or liquid assets (such as certificates of deposit) the firm has immediately available. Other more stringent measures might require the firm to rely on its future earnings to finance an environmental expenditure. Examples of future earnings that could be used to fund these expenditures include internally generated cash flows, loans on unlevered assets, the sale of assets,

⁵ The burden of proof in ability to pay matters can be a complex legal issue. Government users can obtain advice on this issue by contacting Jonathan Libber, the BEN/ABEL coordinator, at 202/564-6102.

⁶ For the purposes of this manual any corporation or partnership that is a defendant in an EPA administrative or judicial enforcement action is referred to simply as a "firm."

⁷ For assistance with the selection of an expert on ability to pay and financial analysis, EPA staff should call Jonathan Libber, the BEN/ABEL coordinator, at 202/564-6102.

and the sale of stock.⁸ Finally, for cases involving unincorporated businesses, the Agency or a court may look at the personal assets of the owners in determining their ability to meet a penalty assessment.⁹

Three issues regarding the model should be kept in mind when assessing a firm's ability to pay: (1) ABEL tends to be conservative in predicting ability to pay; (2) the ABEL analysis primarily focuses on a firm's cash flow, and (3) ABEL does not consider the quality of data entered. Consequently, if ABEL determines that a firm can afford to pay, Agency personnel do not need to look any further at the issue unless it goes to trial or hearing.¹⁰ If the model yields an indeterminate answer or determines an inability to pay, however, the user should conduct additional financial analyses before reducing a civil penalty, as even firms with poor cash flow often have sufficient resources to pay for environmental expenditures. These analyses typically involve reviewing additional financial information on the firm including, but not limited to, the firm's financial statements (including balance sheet, income statement, statement of cash flows, and notes), Dun & Bradstreet Reports, and other publically available information. It may also involve analyzing sections of the firm's tax forms not utilized by ABEL and/or a closer evaluation of the firm's assets and liabilities to ensure that the data recorded on the firm's tax returns adequately reflect the firm's current financial condition.

After providing summary financial statements and analyzing some basic financial ratios that reflect firm liquidity and solvency, ABEL assesses a firm's ability to pay by focusing on projected cash flows. The model explicitly calculates the value of projected, internally generated, cash flows from historical tax information, and compares these cash flows to the proposed environmental expenditure(s). ABEL assumes that the near future will resemble the immediate past. That is, the model projects future cash flows by assuming that the firm will continue to perform financially as it has over the recent past. ABEL's measure of ability to pay is more stringent than measures of cash or liquid assets on hand, but less stringent than the legal liability of the firm's owners.

⁸ Internally generated cash flow reflects the income that a firm has generated from ongoing operations, less all cash expenses, including taxes.

⁹ For incorporated firms, liability is limited to the value of shareholders' equity.

¹⁰ If the ability to pay issue is going to be raised at a trial or hearing, the Agency should be prepared to explain where the funds to pay for compliance, clean-up or penalties are going to come from. In order to do that, you may need to use an expert. Agency personnel are strongly advised against using the ABEL model in a trial or hearing, as it is biased in favor of the violator (it only handles the cash flow part of the analysis) and it is unlikely that a trier of fact will fully comprehend the complex analysis that ABEL performs. In a trial or hearing, it is usually more effective to explicitly identify potential sources of funds.

One crucial, but often overlooked, policy matter is that the Agency will not automatically reduce a penalty even when a violator proves conclusively that it cannot afford to pay. The Agency will not reduce the civil penalty for inability to pay in the following situations:

- the violator refuses to comply with pollution control requirements;
- the violator cannot afford to comply with pollution control requirements; or
- the violator's conduct was egregious (e.g., willful violations, or violations that might have or actually endangered lives).¹¹

A. HOW TO USE THIS MANUAL

This manual provides instructions for using the ABEL Model. These instructions illustrate the model with a hypothetical example and demonstrate a typical model run.

Chapters 2 through 4 provide information necessary to complete and understand a model run for a corporation involved in a traditional penalty case (i.e., non-Superfund). Chapter 2 describes the preliminary steps needed to use the ABEL Model. Chapter 3 provides a step-by-step guide for each of the model's screens. These instructions detail the mechanics of using the model. Chapter 4 describes the model's results and output, and provides instruction for interpreting the results of a model run. The chapter also explains how to change input values for subsequent runs. Chapter 5 describes the model's results and output for Superfund cases, which differ only slightly from traditional penalty cases. Chapter 6 contains information about analyzing alternative corporate forms (e.g., S corporations and partnerships). Appendix A provides the model's equations and describes the ability to pay calculations. Appendix B contains a primer on reading and interpreting a firm's financial statements. Appendix C contains ABEL data entry forms. Some users may find it easier to organize the necessary data on the data entry forms prior to running the ABEL program.

Help information is available in the program if you need a variable defined, guidance on information sources, or help with the format required for an input entry. To access help, click the "Help" button located at the base of each screen or press the F1 key. If you need assistance in operating the program, understanding the results, or other guidance in using the model, contact Jonathan Libber, the BEN/ABEL Coordinator at FTS/202 564-6102 or EPA's Economic Support Helpline at 888/ECONSPT.

¹¹ For more guidance see EPA's *Guidance on Determining a Violator's Ability to Pay a Civil Penalty*, December 16, 1986.

ABEL is an interactive computer program designed to run on IBM-PC compatible computers in the WindowsTM environment. This chapter presents a detailed description of procedures for using the ABEL model to evaluate the financial health of a corporation. For an in-depth description of the model's case screens, see Chapter 3.

Chapter 2 is divided into five sections. Section A describes how the computer program is structured and provides an overview of the choices that ABEL presents during program execution. Section B explains the procedures for starting the program on your own computer. Section C provides data format requirements and additional helpful hints for entering data at your computer workstation. This section also illustrates the error messages ABEL provides if you fail to enter data properly. Section D explains the procedures for ending the program and exporting your results. Section E provides an overview of the options for printing your results.

A. STRUCTURE OF THE PROGRAM

ABEL requests information on the firm's historical financial condition, and, based on this information, evaluates the firm's ability to pay environmental expenditures. ABEL uses three to five years of tax return data to generate a detailed pro forma financial statement and five ratios that provide a general indication of the firm's current financial condition. ABEL also assesses whether the firm will be able to pay for the environmental expenditure that you propose. After you provide ABEL with information on proposed environmental expenditures, the model estimates the probability that the firm can pay for these costs out of internally generated cash flows.

1. Data Requirements

Before you use ABEL, you must obtain three to five years of the firm's federal income tax return information. These returns must be signed and dated and you should try to obtain the most recent available information. To insure against the submission of fraudulent tax returns, it is

advisable to obtain a summary of the firm's tax returns from the IRS. The firm can release the returns to EPA by signing a Form 8821.¹

2. Overview of Computer Program

The model operates in the WindowsTM environment.² Each screen prompts you for specific information and will not allow you to continue until you respond to the prompts. Within each screen you can enter information in any order you wish and make necessary edits. Once you complete each screen, click the "Continue" button at the bottom of the screen to save your inputs and continue with the next step of the program. Alternatively, you can click the "Cancel" button to exit without saving any input or revisions to input that you have made for that particular screen.

To access an explanation of the information required at any point during your use of the model, simply press F1 or click the "Help" button. The help screens provide content-sensitive assistance, including information pertaining both to running the model and understanding and interpreting the model's input and output values.

Once you access the model, the first screen will prompt you for initial information about the user (i.e., you) and where you would like output files stored. The second screen represents the "Main" screen of the model -- here you select a case to examine, begin data entry or data editing, and undertake an analysis. You will be referred back to this screen after you complete a given task, such as data entry or editing.

After you indicate whether the case is existing or new in the second screen, you are then ready to input or edit case information. For a new case, you will be prompted for basic case information (e.g., firm's name, address, number of years of tax information available, year of latest tax return). From the main screen, select the "Input" button to enter the tax return data to complete an analysis. You may then select the "Data Summary" option to verify the information you have input. Then you can run the analysis by selecting the "Run" button. For an existing case, proceed directly to the "Input" button to make any changes to the data before conducting the analysis. You may choose only the data entry screens that you wish to edit. Data input should take about 20 to 30 minutes for each new case.

ABEL displays the results of your calculations on your computer screen and allows you to save your cases for later printing or for further modification. When you are finished, you can choose

¹ A copy of IRS Tax Form 8821 is located in Appendix B of the ABEL 1998 Training Materials.

² If you are not familiar with the WindowsTM computing environment, consult a Microsoft WindowsTM user's guide.

to run the program again or end the program session. If you run the program again, you can change one or more of the data inputs from your previous run. You can then re-calculate the ability to pay analysis without having to re-enter all of your input values. These procedures are described in more detail in Chapter 3.

B. GETTING STARTED

The ABEL Model requires the following minimum equipment to operate:

- PC-compatible 386 computer
- 8 MB of RAM
- Windows™ (Version 3.x) operating system
- Monitor with 640 x 480 or greater resolution
- Mouse (or other pointing device)

If running Windows™ 3.x, the recommended configuration is:

- PC-compatible 486 computer
- 16 MB of RAM
- SVGA monitor with 800 x 600 resolution
- Mouse (or other pointing device)

If running Windows™ 95, the recommended configuration is:

- PC-compatible Pentium level computer
- 32 MB of RAM
- SVGA monitor with 800 x 600 or greater resolution
- Mouse (or other pointing device)

What difference does your PC configuration make when using the ABEL model? The faster your system, the faster the ABEL model will operate. For example, while the model is designed to operate on a PC-compatible 386 computer, you will find that the model requires several minutes to generate results. The time required to generate results on a Pentium-level computer, in contrast, is approximately 30 seconds. The remainder of this section describes how to install the ABEL model on your hard drive using diskettes.³

³ABEL 1998 has been tested on many different operating systems. The standard font used during the development process was Times New Roman, 12 point. If you experience difficulty reading the text on your screen or the text printed on the model output, please seek help from your regional computer support staff. Your support staff may be able to solve the problem by modifying your video driver, monitor setup, printer driver, or printer setup.

1. Installing to a PC from Floppy Disks

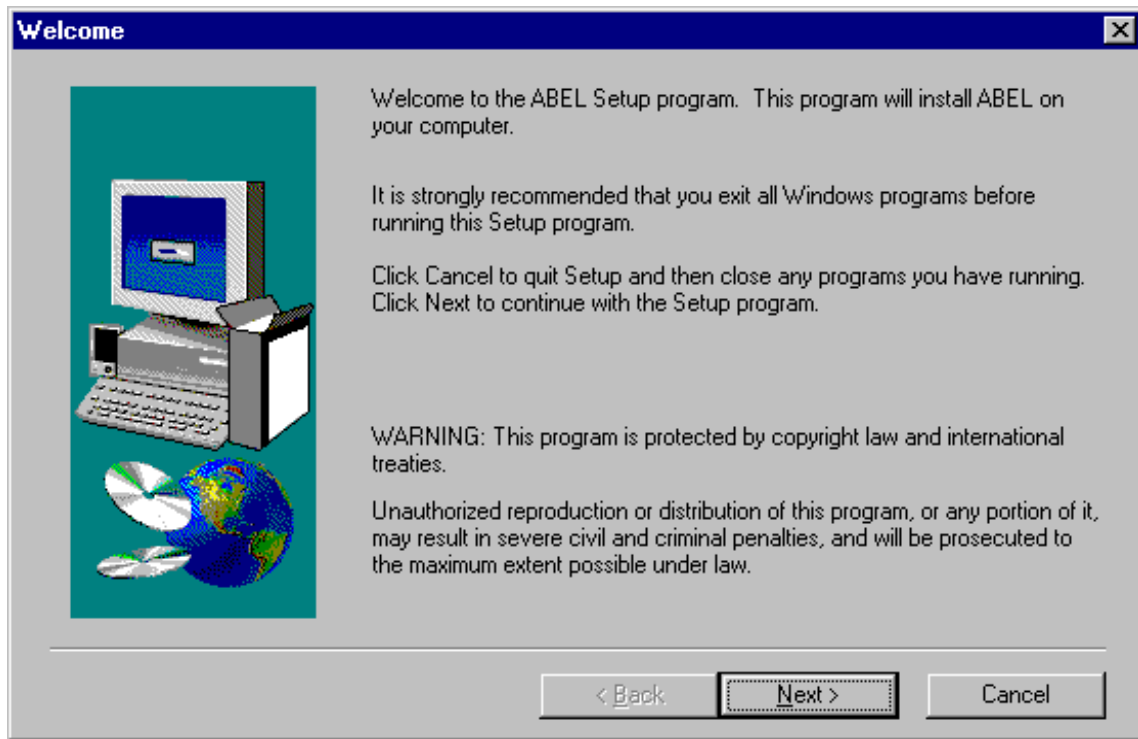
If you have access to the five floppy disks containing the PC version of the ABEL model, you can load the program onto your hard drive. First, insert Disk 1 into a floppy drive (probably drive a:\ or b:\).

- If you are running WindowsTM 3.x or WindowsTM NT 3.5x, you should then enter the Program Manager. If you have any other applications running within WindowsTM (e.g., word processing software, clock, e-mail), close them. Within the Program Manager screen, go up to the Menu bar, click "File," then click "Run." In the command line of the Run dialogue box, enter "a:\setup.exe" (or "b:\setup.exe" if the floppy is in the b:\ drive). Then click "OK." If you receive a warning message that you cannot copy a file because it is in use, simply click "OK." It is merely notifying you that the file the installation system is trying to copy already exists on your computer and is currently open.
- If you are running WindowsTM 95 or WindowsTM NT 4.0, go to the Tool Bar and click the "Start" button. Choose "Run" from the Start Menu (usually located in the lower left-hand corner of your screen). In the command line of the Run dialogue box, enter "a:\setup.exe" (or "b:\setup.exe" if the floppy is in the b:\ drive). Then click "OK." If you receive a warning message that you cannot copy a file because it is in use, simply click "OK." It is merely notifying you that the file the installation system is trying to copy already exists on your computer and is currently open.

The first ABEL setup screen will appear as shown in Exhibit 2-1. This screen reminds you to close any other software packages open on your computer. If you need to exit the ABEL installation to close some software, select "Cancel." If you select "Cancel" at any time during the installation process you will receive a message telling you that installation is not complete. This option allows you to install the program later. If all of your software is closed and you wish to proceed with installation, press "Next."

Exhibit 2-1

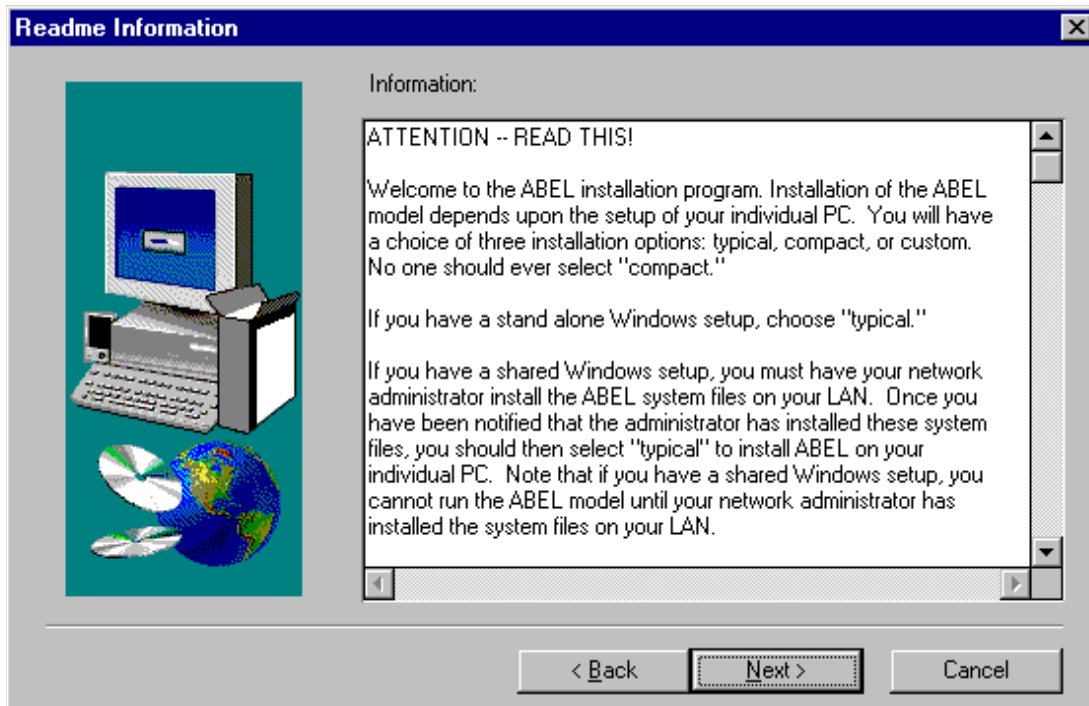
"ABEL INSTALLATION - FIRST SCREEN"



After selecting "Next" the second setup screen will appear as shown in Exhibit 2-2. Before beginning you will be asked to read a short explanation about the three installation options provided by the ABEL model. **PLEASE READ THIS SCREEN BEFORE PROCEEDING WITH INSTALLATION!** ABEL requires several different installation options because computer systems (i.e., local area networks or LANs) in EPA regional offices and state agencies can be configured differently, affecting the installation process. In most regions, you will have all of your system files located on your individual PC. If this is the case, you should choose "typical" as your installation option. Alternatively, in other regions, your system files may be located on your regional LAN. In this case, you cannot overwrite the system files during the installation process as required for the ABEL model to load. You should install the "typical" option to your computer *only after* your computer support staff install the system files on your LAN. You should contact your computer support staff to determine which Windows setup is used in your region. For more information, please see the instructions illustrated in *italics* below.

Exhibit 2-2

"ABEL INSTALLATION - SECOND SCREEN"



Installation of the ABEL model depends upon the setup of your individual PC. You will have a choice of three installation options: typical, compact, or custom. No one should ever select "compact." If you have a stand alone Windows setup, choose "typical." If you have a shared Windows setup, you must have your network administrator install the ABEL system files on your LAN. Once you have been notified that the administrator has installed these system files, you should then select "typical" to install ABEL on your individual PC. Note that if you have a shared Windows setup, you cannot run the ABEL model until your network administrator has installed the system files on your LAN. Individual users should not select the "custom" option.

If you do not know the type of Windows setup that is installed on your individual PC, please seek help from your network administrator.

If you are a network administrator, select the "custom" installation option. You will then be given a choice to install program files, system files, or all files. If your network setup is shared, you MUST install the system files to the LAN to enable your users to run ABEL. Verify the file dates and versions against the list provided in the Administrators' Instructions and notify users that they may proceed with the installation. You may also choose to install the program files on the LAN to allow for easier distribution of the model. If you install the program files to the LAN, please make sure that your users have full access to the directory in which ABEL is stored.

If you have any questions about the installation of the ABEL model, please call EPA's Economic Support Helpline at 888/ECONSPT.

After you finish reading the installation instructions, please press "Next." The third setup screen will appear as shown in Exhibit 2-3. You will also be asked to designate a directory in which to store the model. The default directory is "C:\ABEL" (assuming that your local hard drive is c:\). If you wish to save the model to a different directory, select the browse key and click on the appropriate directory as shown in Exhibit 2-4. If the directory in which you wish to store the model does not exist, place the cursor on the path line and type a name for the new directory (e.g., c:\NEWABEL in Exhibit 2-4). ABEL will automatically create the directory for you. It is extremely important that you not enter a root directory (e.g., c:\ or f:\) here; you must specify a subdirectory (e.g., c:\abel). **Note that you should not store ABEL 1998 to the same directory in which the DOS version of the ABEL model is stored. Please verify that the DOS version of the ABEL model is not stored in the "C:\ABEL" directory before proceeding.** For example, if the DOS version of the model is stored in "C:\ABEL," you may wish to save ABEL 1998 to a directory titled "C:\NEWABEL." If you wish to return to the previous screen, press "Back." If you wish to exit the installation program, press "Cancel."

Exhibit 2-3

"ABEL INSTALLATION - THIRD SCREEN"

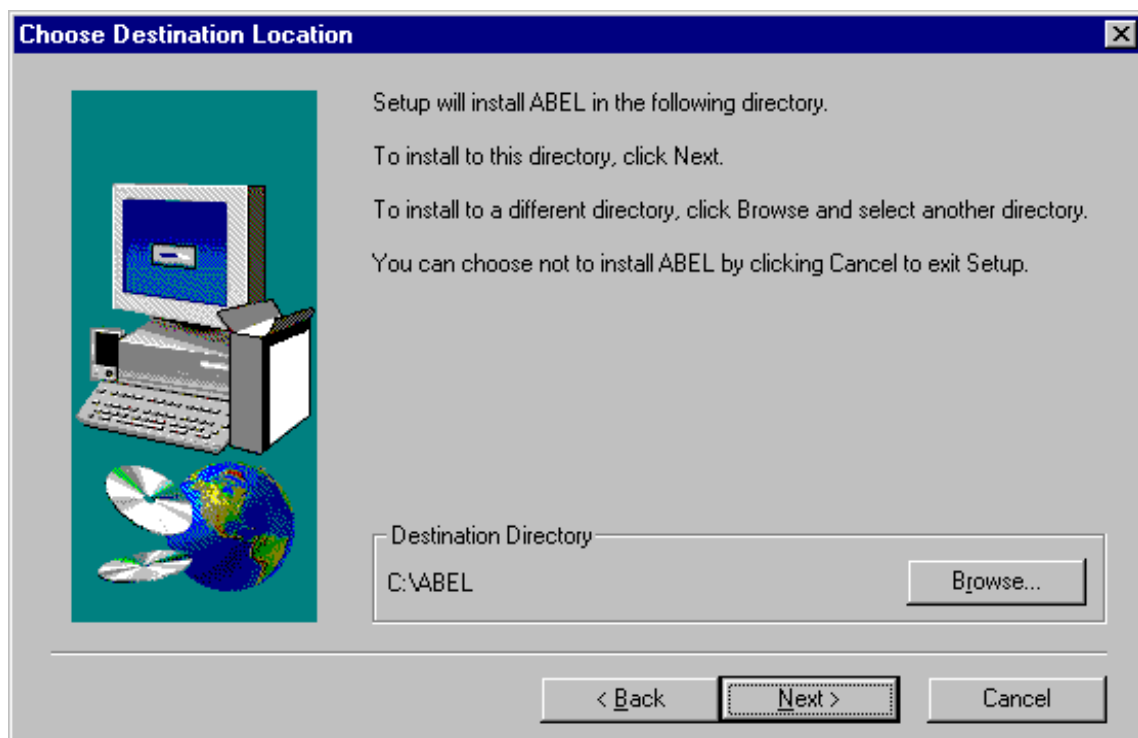
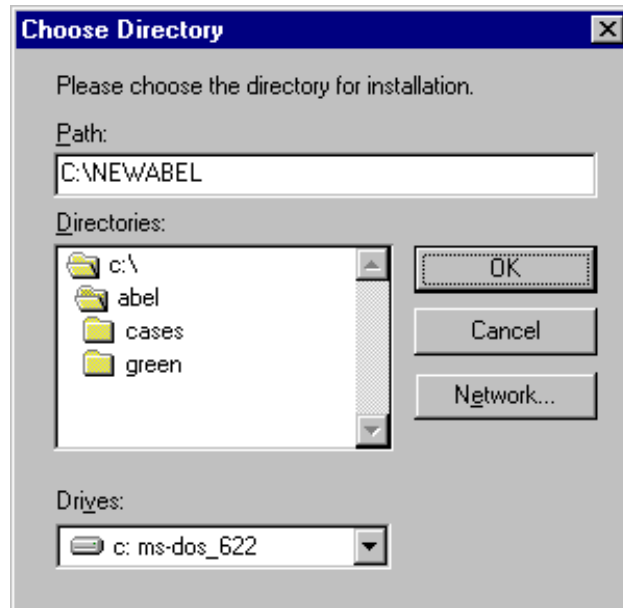


Exhibit 2-4

"ABEL INSTALLATION - FOURTH SCREEN"

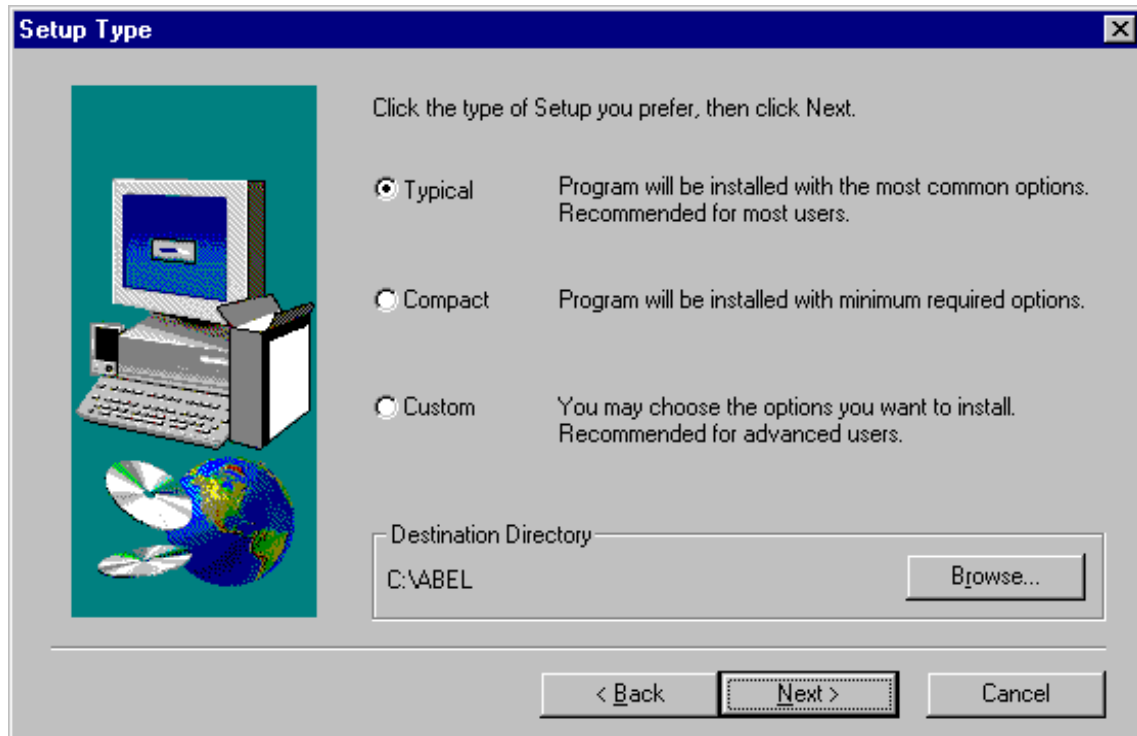


After selecting "Next" on the third setup screen, the next setup screen will appear as shown in Exhibit 2-5. On this screen, you will be asked to specify a setup option. You should make your decision using the text outlined on the second installation screen, as well as assistance from your computer support staff. You can also change the directory in which you wish to store the model on this screen by selecting "Browse."

Note that you also have the option of returning to the previous screen by selecting "Back" or to exit the installation program entirely by selecting "Cancel."

Exhibit 2-5

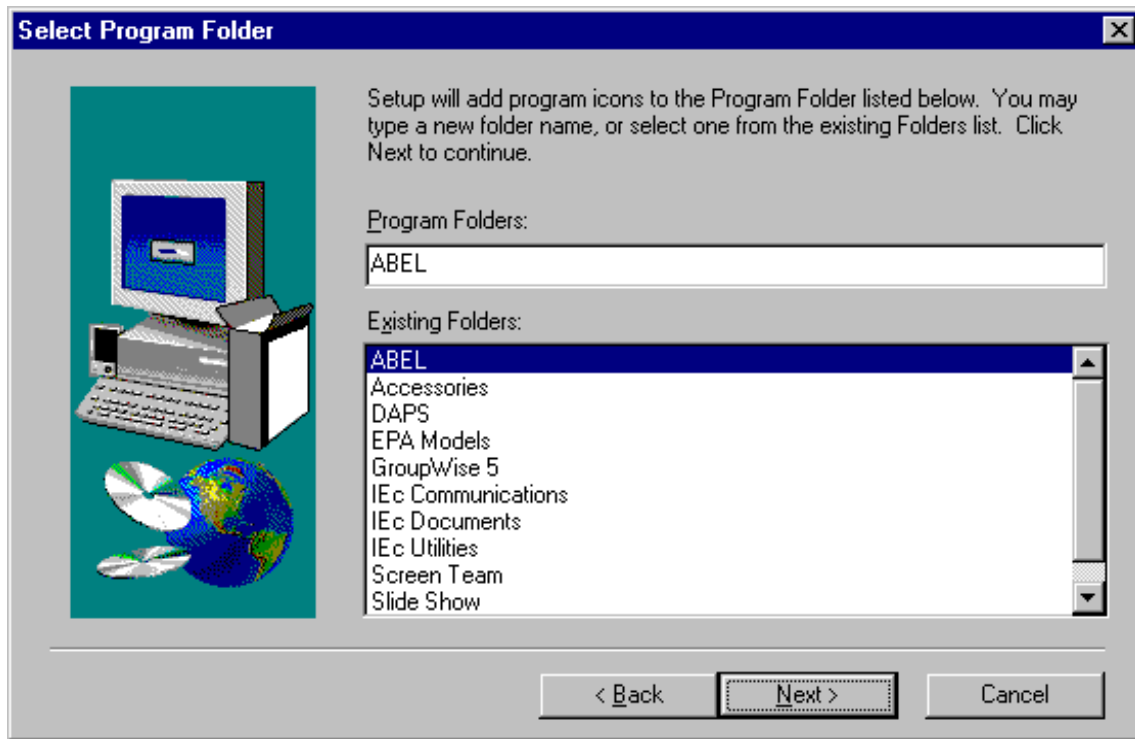
"ABEL INSTALLATION - FIFTH SCREEN"



After selecting "Next" on the fifth setup screen (i.e., Exhibit 2-5), the sixth setup screen will appear, as shown in Exhibit 2-6. This screen allows you to designate the Program Folder (or Program Group if you are running Windows™ 3.x) in which you would like the ABEL 1998 icon to reside. The default folder that the model creates for you is ABEL. You may also choose to install the icon to an alternative Folder (or Group) such as EPA models. After selecting the appropriate Folder (or Group), press "Next."

Exhibit 2-6

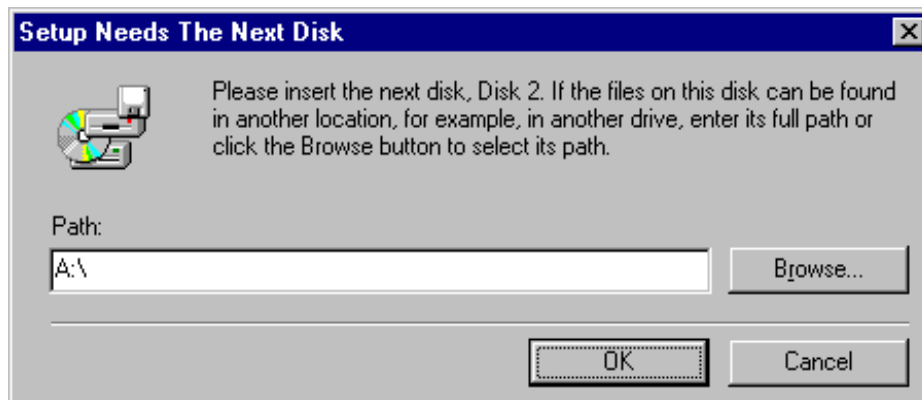
"ABEL INSTALLATION - SIXTH SCREEN"



After selecting "Next" on the sixth setup screen, you will be asked to insert Disks 2 through 5 successively, as shown in Exhibit 2-7. The "path" displays the location of the ABEL 1998 installation disk and *not the directory in which your model will be stored*. For example, in this case the installation disks are located in the a:\ drive.

Exhibit 2-7

"ABEL INSTALLATION - SEVENTH SCREEN"



The program will give you a completion notice after all of the ABEL files have been copied to your hard drive. The eighth setup screen will then appear as shown in Exhibit 2-8. On this screen you will be asked whether you wish to reboot your computer. To ensure proper installation of the model you should select "Yes" and press "Finish."

Exhibit 2-8

"ABEL INSTALLATION - EIGHTH SCREEN"



Once ABEL has been loaded onto your hard drive, simply double-click the model icon to start the program. After installing the model, you may wish to create a subdirectory for storage of your case files. You may also choose to store your case files in a pre-existing directory as ABEL case files will not alter any other files stored in that directory (e.g, WordPerfect files, Excel spreadsheets). *Note that you must save your case files in a directory that is different from the directory in which the model is stored.* For example, if the model is stored in "c:\abel," you may wish to create a directory titled "c:\abel\cases" for storage of your case files.

C. MODEL ATTRIBUTES

The following sections illustrate the key attributes of the model, including the general features common to every screen displayed in the model, format of data entries, the help system, how to correct entry errors, and error messages generated by the model. Note that a complete description of each screen is provided in Chapter 3.

1. General Features of the Model Screens

You must enter certain basic information before the program will allow you to proceed to the next window. You can move directly to each input item using your mouse or tab key. If you click the "Continue" button located at the bottom of the screen before entering required information, the cursor will return to the first line of missing information to prompt your entry. At any time you can use your mouse or tab key to move around the screen and edit an entry that you have already made.

2. Format of the Data Entries

ABEL is very flexible regarding the format of data entries that it will accept, unlike some non-WindowsTM models that require specific entry formats (e.g., in some programs numerical values cannot be entered with commas, dollar signs, or percent signs). For example, the input screen of the model requires the user to input the "gross receipts or sales less returns and allowances" from the firm's federal tax form. Suppose that this figure is \$1,285,600. The user can enter that figure as "1285600," "1285600.00," or "1,285,600." The model will record any of these inputs as \$1,285,600. The same is true for all other inputs.

Be careful to use only the number keys to enter numerical values. A common mistake is typing the lowercase letter **L** instead of a number 1. Another error occurs when the capital letter **O** is typed instead of the number 0 (zero). The model cannot adjust for figures that are input with a mix of numbers, letters, and characters other than commas, decimal points, and negative signs. For that reason, do not include a dollar sign (\$) in any entries. Negative dollar amounts should be entered with a minus sign before the amount, rather than parentheses around the amount; e.g., "-45600" rather than "(45600)."

3. Help System

As noted previously, the user can easily access the help system by either pressing the F1 key or clicking the "Help" button. The help feature allows the user to obtain assistance in both running the model and understanding the model's output. When you have entered a help screen, you will see either the help topic and a brief explanation (if there is only one help topic for that screen) or a listing of the various help topics available. From such a list you may click directly on the name of any

particular topic to bring up a secondary help screen which will explain that topic. In some cases the help explanations may parallel explanations in this manual, or may refer you to this manual for further assistance.

4. Correcting Typing Errors

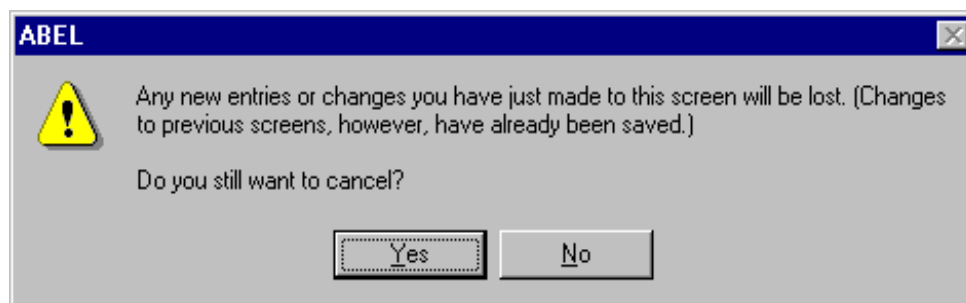
After typing your entry, you might discover that you have typed an incorrect letter or number. If you have not yet clicked the "Continue" button at the base of the window, correcting the mistake is straightforward. Simply click the entry containing the error and correct it. For example, if you typed 100,234 and want to delete one of the zeros, you would simply click the relevant input box and correct the figure (i.e., 10,234).

It is extremely important for you to *verify* your data inputs so that the computer conducts the analysis using the correct information. You may do so by examining them on the screen as well as comparing the written input summary with the firm's tax forms. Most people find that they can perform a better audit by checking the written summary than they can by checking the input window on the computer screen. For that reason, the model includes a data summary in its printout. To generate this summary, select the "Data Summary" button located at the bottom of the "Main" screen and click the "Print" button at the base of each data summary screen produced.

If your inspection of the data inputs reveals that you have made an error, exit back to the "Main" screen, then work your way to the data input screen containing the error to correct it.

5. Error Messages

The model will notify you if you have made an error that prevents the model from conducting an analysis. These errors generally include the lack of input information integral to the model's calculations. In such cases, the model will prompt you to return to the missing or inaccurately entered data before continuing with the ability to pay analysis. The model will also double-check that you want to erase any changes made to the screen when you click "Cancel" to exit a screen, so that you do not accidentally lose revisions. In such cases, the model will issue a warning like the following:



By canceling to exit a screen, you will only lose changes made to that particular screen; you will not lose edits to any previous screens.

D. ENDING PROCEDURES

A key feature of the ABEL Model is the ability to save your interim data inputs and analysis as you work through a case. Each time you enter data into a particular screen and click the "Continue" button, the model will automatically save your data inputs. This attribute is particularly convenient if you are interrupted during use of the model. If you have saved your data input, you can exit the program and when you return, all of the information will be stored in a case file displayed on the "Main" screen. Similarly, you can also find any interim results that you have saved in the case file.

If, after entering data into a particular screen, you do not wish to run the analysis with that data, you can click the "Cancel" button rather than clicking "Continue." The computer will ask you to verify that you wish to erase the inputs or changes to input which you have just entered on that screen. If you click "OK," you will exit the screen and any inputs that you just entered will be deleted; the screen will return to its previous status. Any inputs made to other screens will not be erased, however. If you realize only after clicking "Continue" that you do not wish to run the analysis with data from a screen, you must re-enter the screen and change the data, then click "Continue" to save the changes.

After completing a case, you may wish to "export" your results to another user or directory. All of your case files are stored together within the model in a single file called "ABELCASE.MDB" located in the directory specified as your output directory in the first screen of the model (see Chapter 3, Exhibit 3-1). You may transfer these files by clicking the "Export" button on the "Main" screen. In the subscreen, denoted "Select Cases for Export," choose the case or cases you wish to export by single-clicking each case name. If you wish to export all the cases you may click the "Select All" button above the case name list. Then, select the directory or subdirectory into which you want your case files transferred by clicking it. You may also create a new subdirectory for your cases by clicking the box titled "Create New Subdirectory" and typing in the name of your choice. A new subdirectory with that name will appear under the directory currently selected in the "Destination Directory" box. Finally, click the "Export" button. The model will issue a prompt asking if you wish to continue to export; click "Yes." A message will come up notifying you of the successful exporting of your files. *Note that this procedure will replace any existing ABEL cases which may previously have been in the destination directory with the exported files.*⁴

⁴ Alternatively, you can export cases using the File Manager application in Windows™. Copy the "ABELCASE.MDB" file, which contains all of your existing cases, to another directory in order to transfer information about any particular case to that directory. Again, note that any cases which were previously in the receiving directory will be erased through this procedure.

E. PRINTING OPTIONS

ABEL allows you to print a summary of your data inputs and the results of your analysis. To print a data input summary, simply click the "Print" button located at the bottom of the associated screen. If you wish to print the results of the analysis, click "Run" on the "Main" screen. The "Reports in Generation" screen will appear. Select the reports you wish to print and designate "Printer" as your destination. Then click "Generate." You may generate the same reports to your computer screen by selecting "Screen" as your destination and clicking "Generate." Finally, pressing the printer button on the upper left hand corner of the Financial Profile and Ability to Pay Analysis reports will print your results.

ABEL evaluates the capability of a firm to pay a specified penalty or environmental cleanup contribution. The model is specifically designed to evaluate the ability to pay of corporations. Corporations may file a Form 1120, 1120 A, or 1120 S federal income tax return. Under some circumstances, an analyst may also wish to use ABEL to evaluate the ability to pay of a partnership.¹ Partnerships file a Form 1065 federal income tax return.

ABEL is designed to accept data directly from Forms 1120, 1120 A, 1120 S, and 1065. The firm's most recent tax data are required for ABEL to produce a reliable analysis. If the firm re-filed any forms for the years that you are using, it is essential that you obtain the most up-to-date version of these forms. In addition, all returns submitted for an ABEL analysis must be signed. One of the key advantages of using tax returns is that the violator has stated, under the penalty of perjury, that the information provided on the tax form is true. Without the signature, you have no guarantee that this information is accurate. If the violator no longer has signed copies, the violator can obtain these from the IRS.² Alternatively, you may obtain a violator's tax returns directly from the IRS if you obtain the firm's permission and submit a Form 8821 to your nearest IRS office. This form must be signed by the violator and submitted within 30 days of the signature. EPA advises enforcement personnel to ask the violator to submit a Form 8821 even if you receive signed returns due to the marked increase in the submission of fraudulent tax returns. The analyst can use the tax returns provided by the firm to assess its preliminary ability to pay a Superfund contribution or environmental penalty. However, the analyst should confirm the accuracy of the returns submitted by the firm against the returns provided by the IRS.

¹ By law, the individual partners are generally liable for a partnership's environmental obligations. Therefore, it is usually advisable to analyze the ability to pay of each partner in addition to that of the partnership. If the partner is a corporation, ABEL should be employed using three to five years of the corporate partner's tax returns. If the partner is an individual, the Individual Ability to Pay Model should be used instead. Please consult Jonathan Libber, EPA's BEN/ABEL coordinator, for more information at 202/564-6102 or EPA's Economic Support Helpline at 888/ECONSPT (via e-mail at benabel@indecon.com).

² Please contact Jonathan Libber (202/564-6102) or the Economic Support Helpline (888/ECONSPT) for more information.

In order to evaluate a firm's financial condition using ABEL, you must understand its relationship to other business entities. For instance, a violator may be the subsidiary of a large parent corporation, or may be one of several closely related "sister" firms. While the violator may be filing its own tax returns, it is easy for another entity to make the violator look artificially poor by manipulating the violator's finances. In these situations, Agency personnel should insist on seeing tax returns and other relevant financial reports from all related firms.

This chapter provides a screen-by-screen explanation of the model. Screens from a hypothetical case accompany the discussion. Each explanation describes how to maneuver within the WindowsTM environment, the data inputs required by the screen, and the model's response to the inputs. Section A describes the preliminary case inputs required for the model's analysis, including basic information about the firm and information required from the firm's federal income tax forms. Section B discusses the firm's data entry screens. The user enters information from the firm's income tax forms as well as additional case information not contained in the firm's tax returns (e.g., penalty or contribution amount). Section C discusses the mechanics of conducting and printing an analysis. (A more thorough discussion on how to interpret the analysis is provided in Chapter 4.) Section D discusses the procedures for modifying model runs and case details.

A. PRELIMINARY CASE SCREENS

Access the ABEL Model by double-clicking the "ABEL Model" icon located on your computer's program manager screen. After accessing the model, three preliminary case screens will appear successively.

1. Welcome Screen

The first screen that appears is the "Welcome" screen, as shown in Exhibit 3-1. The first time you use the model, you will be required to provide a) your user name, b) the EPA region under which the case falls, and c) the location of the output directory where you would like all output files stored on your computer system.

In the example provided in Exhibit 3-1, the user name is "Jon Green." For your purposes, you may want to type your full name here or your initials. The EPA region is Region 8. You may select the region by clicking the down-pointing arrow to pull up a menu of choices that includes all ten EPA regions, EPA headquarters, and "Other" (for non-EPA users). Click your choice.

The directory where Jon Green's files will be stored is "C:\ABEL\GREEN\CASES." In order to select an output directory, click the downward arrow key to the right of the drive box and click the appropriate drive. Then double-click the drive in the directory box to obtain a list of directories from which you may double-click the one you choose. You may then select subdirectories by double-clicking the name of your selected directory and choosing a subdirectory from the list that appears. **Do not** save your output to the same directory in which the ABEL Model is stored.

Designate a separate directory for your output. For example, before starting the model, you may wish to create a subdirectory called "CASES" within your own personal directory in which to store your output file.³

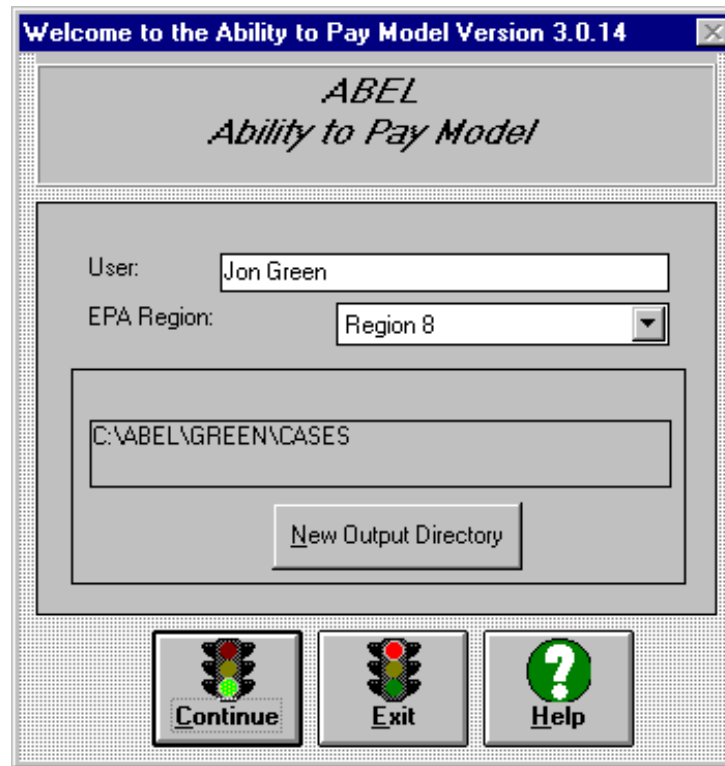
Whenever the user specifies a new output directory, the model will automatically issue a warning message before allowing the user to continue which alerts the user that no case files currently exist in the specified directory. The model then asks if you want to create a new case file. Clicking "Yes" allows you to create and save cases in the new directory; clicking "No" prevents you from continuing further in the model.

After providing this information during your first use of the model, future model runs will always show the user name and output directory you initially designated. Simply click the "Continue" button if these inputs continue to be valid. Alternatively, you can change them at any time.

³ Note that the model saves all of the cases you create within a single file called "ABELCASE.MDB" in the output directory you specify in the "Welcome" screen. If you need to copy or transfer case information to other users, you should specify separate output directories in which to store such cases. In this way, you can more easily identify the appropriate "ABELCASE.MDB" file to transfer.

Exhibit 3-1

"WELCOME" SCREEN



Welcome to the Ability to Pay Model Version 3.0.14

ABEL
Ability to Pay Model

User: Jon Green

EPA Region: Region 8

C:\ABEL\GREEN\CASES

New Output Directory

Continue Exit Help

2. Main Screen

The second screen that appears in the ABEL Model is the "Main" screen, as shown in Exhibit 3-2. This screen serves as the controlling screen of the program, and you execute the various stages of the model from it.

First, you need to designate the case you wish to examine. When you run the model for the first time, or have a new case to analyze, click the "New" button. This selection will trigger the "Case Description Details" screen, in which you record the basic case information (see Section 3). If, on the other hand, you have used the model and saved the associated case files, your case files will be listed in the top box. If you want to work on an existing case, click the case name to select it, and then click the "Edit" button.

In the example given in Exhibit 3-2, the analyst (Jon Green) previously entered information about six cases — "Fantastic Metal Finishing, Inc.," "Apple Manufacturing," "Anderson Associates," "Town Tool Company" and two separate runs for "Century Chemicals." If Jon Green wanted to re-examine the Town Tool case (or was interrupted before he finished entering all of the financial data

needed for the Town Tool case), he would simply move his mouse and click "Town Tool Company" to select this case. He would then move his mouse to the "Edit" button and would click it to revisit this case. If Jon Green wished to enter information for a new case, he would instead move his mouse to the "New" button and click to indicate that he wanted to begin work on a new case. Thus the next screen, allowing him to enter the case name and other information about the firm, would appear.

The "Main" screen also allows you to delete a case file. If you want to delete a case, first select the case. Then click the "Delete" button. The model will ask you if you are certain you wish to delete the case. Clicking "OK" permanently erases the case from your case files.

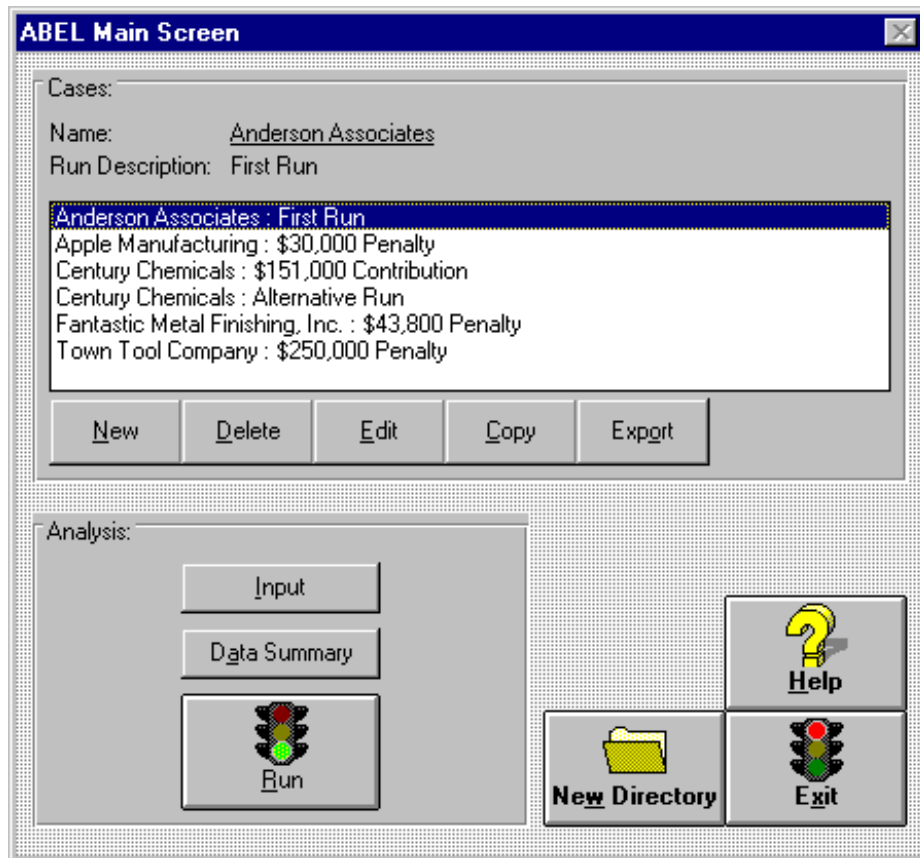
You may also wish to copy or export a case or group of cases. Copying cases is an efficient way to run various analyses of a single firm, in which you change one or two variables in the case input and re-run the analysis to determine the effect of altering these variables on the firm's ability to pay. Exporting cases allows you to select a particular case or group of cases and save it in a different output directory from the directory specified on the "Welcome" screen. This is useful if, for example, you have several analyses of a single firm which you would like to keep separate from other ABEL cases or if you would like to send another analyst a copy of a particular case or group of cases. The procedures for copying and exporting cases are described in Section D of this chapter.

You may also specify a new output directory for storage of your case files by clicking the "New Directory" button. Selecting this button will open a screen very similar to the "Welcome" screen. It allows you to change the directory, but not the user name or region. On this screen, you may change directories by double-clicking on the downward arrow key to the right of the drive box and clicking the appropriate drive. Click "OK" when you are finished or select "Cancel" if you do not wish to change directories. Either selection will bring you back to the "Main" screen.

Finally, to exit the ABEL Model, click the "Exit" button on the lower right-hand side of the screen. The model then closes.

Exhibit 3-2

"MAIN" SCREEN



3. Case Description Details Screen

If you are using the model to examine a new case (and clicked the "New" button on the "Main" screen), the "Case Description Details" screen will appear, as shown in Exhibit 3-3. This screen will also appear if you select the "Edit" button on the "Main" screen to change previously entered case-specific information. You must supply case description information for every case. In the top box, provide the following case information:

- **Firm Name:** Provide the name of the firm. The model accepts names up to 40 characters in length.

- **Street Address:** Provide the firm's street or mailing address. The model accepts addresses up to 30 characters in length.⁴
- **City:** Provide the name of the city or town in which the firm is located. The model accepts names up to 20 characters in length.
- **State:** Provide the state in which the firm is located. Note that you may either type in the first letter of the standard two-letter abbreviation and click the appropriate state beginning with that letter in the menu bar, or click the downward arrow key to the right of the input box (i.e., menu bar) to trigger a menu listing the abbreviations of all 50 states and the District of Columbia.
- **Zip:** Provide the firm's 5-digit zip code.
- **No. of Years of Tax Info:** Enter the number of years of tax information submitted by the firm.
- **Most Recent Year of Tax Info:** Enter the year of the most recent tax form submitted by the firm (e.g., 1996). Note that you should enter the year in 4-digit form, not 2-digit.
- **Data Entry (Thousands, Millions, etc.):** Enter the units in which you are going to enter the data: dollars, thousands of dollars, or millions of dollars. It often expedites the data entry process to round numbers when possible. Remember, however, to maintain consistency with all inputs. For example, if one of the firm's data items was \$11,289 and you wish to enter the data in thousands, you would enter **11** into the ABEL program.
- **Type of Entity:** Enter the type of firm you wish to analyze. This information is available on the firm's income tax returns. A C-Corporation may file either Form 1120 or Form 1120 A. (You will be asked to specify which form the firm filed after clicking "C corporation".) An S corporation files Form 1120 S, and a partnership files Form 1065.⁵

⁴ For confidentiality reasons, ABEL does not require the user to enter information about a firm's street address, city, state, or zip to run an analysis.

⁵ If you select the incorrect type of entity on the "Case Description Details" screen, you cannot alter this selection after you exit the screen. If you realize that you selected the wrong type of entity for a specific case, you should copy the case on the "Main" screen. After copying the case, select the new file, click "Edit," and select the circle next to the appropriate type of entity. If you then select "Input" for tax return information, you will see that ABEL restores the data already entered for the case. Then, carefully review your data input to make sure that your entries correspond to the correct line on the firm's tax returns. You may then choose to delete the incorrect

Exhibit 3-3

"CASE DESCRIPTION DETAILS" SCREEN

Case Description Details

Applicant:

Firm Name:

Address:

Street

City State Zip Code

No. of Years of Tax Info:

Most Recent Year of Tax Info:

Data entry (Thousands, Millions, etc.)

Type of Entity:

☒ C-Corporation ☐ S-Corporation ☐ Partnership

Case:

Analyst:

Statute:

Run Description:

In the example displayed in Exhibit 3-3, the firm, Town Tool Company, is located at 135 Silver Street, Suite 500 in Denver, Colorado. The firm submitted four years of income tax forms of which the most recent was its 1996 tax form.

Next, provide the information requested in the lower portion of the "Case Description Details" screen:

- **Name:** Enter your name (or initials).
- **Statute:** Enter the statute involved in your case's enforcement action by clicking the downward-pointing arrow to view and select the relevant statutes

case file.

or "Other." Because ABEL analyzes Superfund and non-Superfund cases differently, you are required to specify a statute. Click your choice.

- **Run Description:** If you would like to perform multiple analyses of a firm, enter a description here which identifies the unique characteristics of this run. By doing so, you can copy the case under the same firm name and use varying run descriptions to differentiate each version of the case.

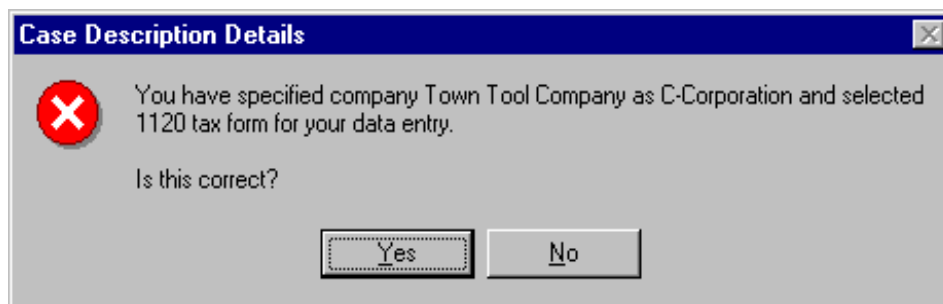
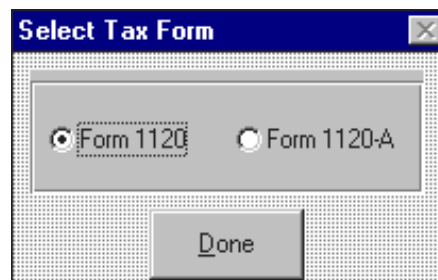
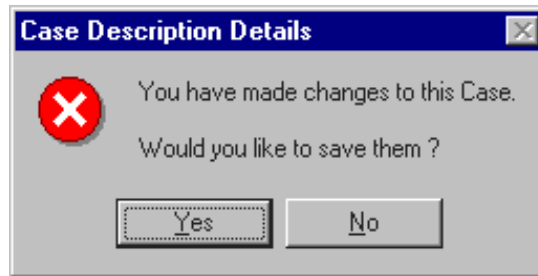
As Exhibit 3-3 shows, Town Tool Company is liable under the RCRA statute. The description for this case is "\$250,000 Penalty."

After entering the data for the "Case Description Details" screen, click the "Continue" button. The program will issue the prompts shown in Exhibit 3-4 to confirm your data inputs. The first screen prompts: "You have made changes to this case. Would you like to save them?" By clicking "Yes," your data will be saved. Clicking "No" will erase the data you have entered and return you to the "Main" screen. After you click "Yes" to save your data inputs, ABEL will ask you to select the type of tax return the firm submits to the IRS.

You can determine whether the firm submits Form 1120 or 1120 A by looking in the upper left hand corner of the firm's tax return. Note that this choice only applies to C corporations. In the case of Town Tool Company, the firm submits Form 1120 to the IRS. Finally, ABEL asks you to verify the name of the firm and the type of tax return it submits on the last screen in Exhibit 3-4. Selecting "Yes" will bring you back to the "Main" Screen (Exhibit 3-2). Selecting "No" will bring you back to the "Case Description Details" Screen.

Exhibit 3-4

"CASE DESCRIPTION DETAILS" CONFIRMATION SCREENS



B. DATA ENTRY SCREENS

You may now enter data from the firm's tax forms. Click the "Input" button on the "Main" screen to begin.

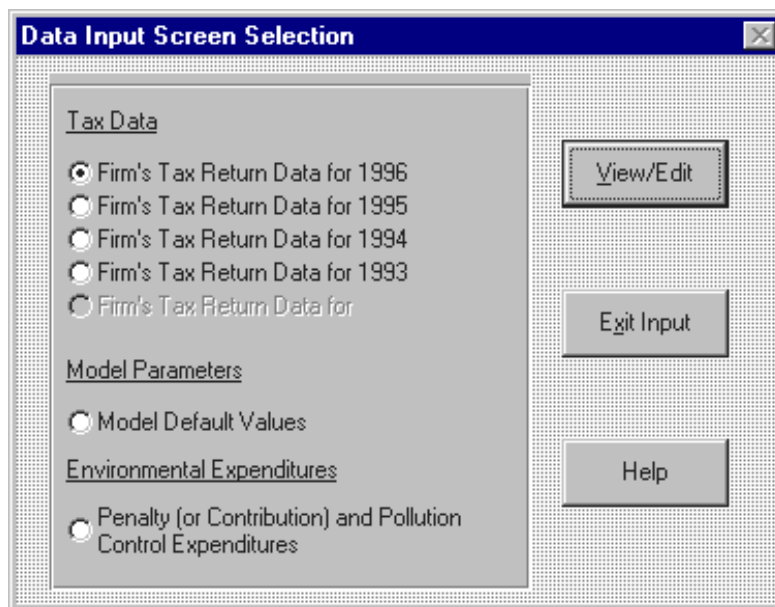
1. Data Input Screen Selection Screen

When you click the "Input" button, the "Data Input Screen Selection" screen will appear, as shown in Exhibit 3-5. This screen lists the different types of information you must enter in order to conduct an analysis. Entering all of this information typically takes 20 to 30 minutes. The screen

separates the information into three categories according to its source -- federal income tax form; model parameters; and case specific details not located on the firm's tax forms. You must enter the tax form and environmental expenditures information. For a new case, you may begin entering the firm's financial data in any order (i.e., you may enter "Environmental Expenditures" first, if desired). For an existing case in which you are changing or correcting an input, simply click the particular piece of information you would like to edit.

Exhibit 3-5

"DATA INPUT SCREEN SELECTION" SCREEN



2. Tax Form Input Screens

Under the Tax Data category on the "Data Input Screen Selection" screen, select the year for which you want to enter tax data for the firm. After selecting a year to analyze, ABEL will issue a screen that reminds you which dollar units you specified to enter the data. Click "OK" to continue. The "tax form" screens will appear, as shown for 1996 in Exhibits 3-6 through 3-8.⁶ Fill in the firm's tax details for the appropriate year as requested in the series of boxes. For easy reference, each input

⁶ Note that the tax data entry screens appear almost identical for years prior to 1996. However, specific references to the line on which the data can be found may vary slightly since the format of tax returns may change year to year.

request lists the corresponding line on the tax form containing the required information.⁷ After completing the tax data inputs for a particular year, save your data and move to the next screen by clicking the "Continue" button. In the example shown in Exhibit 3-6, Town Tool's gross receipts or sales less returns and allowances from Line 1c of its 1996 income tax form was \$1,166,708. The firm claimed \$60,085 in depreciation (Line 20) in 1996 and earned \$2,023 in taxable income (Line 28) before operating loss deductions. Exhibit 3-7 illustrates that Town Tool had \$61,247 in cash (Line 1 on Schedule L, Column d) at the end of 1996, and Exhibit 3-8 shows that the firm had outstanding loans from stockholders of \$53,420 (Line 19 on Schedule L, Column d) at the end of 1996.

All inputs will have direct references to specific line-items on the tax returns, with the exception of amortization. Tax returns do not contain a specific line for amortization. The user must review the attachments to the returns for this information.⁸ In most cases, this expense will appear in the attachment to line 26, "other deductions," on Form 1120. It may also appear in the attachments to Schedule A, "cost of goods sold." Note that only a small portion of firms will have any amortization expenses.

After you have clicked the "Continue" button, another set of "tax form" screens will appear for the next year of tax data. Continue entering each year's data. When you click the "Continue" button after all tax data have been entered for all years, the program will automatically show the input screen for the second input category: model default values.

⁷ Note that the screens shown in this manual prompt you for information from Form 1120, since this is an example of a C corporation. The model will automatically provide adjusted prompts for cases involving S corporations or partnerships. See Chapter 6 for alternative tax data input screens.

⁸ Amortization in addition to cost of goods sold are inputs that were not included in the DOS version of the ABEL model. Cost of goods sold was added to enable the model to calculate a firm's operating profit on the Income Statement. Operating profit is an important indicator of the health of a firm's core business operations. Amortization, the process of liquidating the cost of an asset, was added to enable the model to compute a firm's historical cash flows on the Income Statement. Amortization, like depreciation and depletion, is a non-cash expense that is added back to a firm's claimed net income to compute its historical cash flows.

Exhibit 3-6

"TAX FORM" FIRST SCREEN

Gross Receipts or Sales Less Returns and Allowances (Line 1c)	\$1,166,708
Cost of Goods Sold (Line 2)	\$828,566
Interest Expense (Line 18)	
Depreciation (Line 20)	\$60,085
Depletion (Line 22)	
Amortization (See Attachment to Line 26, "Other Deductions;" also review other attachments for declared amortization expenses)	
Taxable Income Before NOL and Special Deductions (Line 28)	\$2,023
NOL Deductions (Line 29a)	
Special Deductions (Line 29b)	
Total Tax (Line 31)	\$303
Credit From Regulated Investment Companies (Line 32f)	
Credit for Federal Tax on Fuels (Line 32g)	

[Continue](#) [Cancel](#) [Help](#)

Exhibit 3-7

"TAX FORM" SECOND SCREEN

Cash (Line 1 on Schedule L, Column d)	\$61,247
Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	\$197,831
Inventories ((Line 3 on Schedule L, Column d)	\$10,631
U.S. Government Obligations (Line 4 on Schedule L, Column d)	
Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
Other Current Assets (Line 6 on Schedule L, Column d)	\$3,447

[Continue](#) [Cancel](#) [Help](#)

Exhibit 3-8

"TAX FORM" THIRD SCREEN

Line Description	Value
Accounts Payable (Line 16 on Schedule L, Column d)	\$15,885
Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L, Column d)	
Other Current Liabilities (Line 18 on Schedule L, Column d)	\$57,023
Loans from Stockholders (Line 19 on Schedule L, Column d)	\$53,420
Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L, Column d)	
Other Liabilities (Line 21 on Schedule L, Column d)	
Appropriated Retained Earnings (Line 24 on Schedule L, Column d)	
Unappropriated Retained Earnings (Line 25 on Schedule L, Column d)	\$238,275
Total Liabilities and Stockholders' Equity (Line 27 on Schedule L, Column d)	\$464,603
Income Recorded on Books Not Included in Return (Line 7 on Schedule M-1)	

Buttons: Continue, Cancel, Help

3. Model Default Values Screen

The "Model Default Values" screen is shown in Exhibit 3-9. Consistent with EPA policy, certain predetermined default (or standard) values are programmed into the model in order to produce ability to pay conclusions. ABEL's standard values are updated yearly to reflect changes in interest rates and tax laws, although the method for calculating the value remains the same. You should not adjust these values unless you are prompted to do so later in the model or you have case-specific values. These values and their applications are discussed in Chapter 4.

Exhibit 3-9

"MODEL DEFAULT VALUES" SCREEN

The screenshot shows a dialog box titled "Model Parameters" with a standard Windows-style title bar (minimize, maximize, close buttons). The dialog contains several input fields and a checkbox, each with a label to its left. The values entered in the fields are: Reinvestment Rate (0), Annual Inflation Rate (%) (3.1), Discount Rate (%) (10.5), Weighted Average Smoothing Constant (0.3), Marginal Income Tax Rate (%) (39.4), and Number of Years of Future Cash Flow to consider in Ability to Pay Assessment (5). The "Penalty Payment Schedule (2, 3, 4, or 5 years)" checkbox is unchecked. At the bottom of the dialog, there are three buttons: "Continue", "Cancel", and "Help". A note is displayed at the bottom of the main content area, stating: "Note: You do not need to enter a value for the Penalty Payment Schedule if you intend to have the firm pay the penalty in one lump sum."

Parameter	Value
Reinvestment Rate	0
Annual Inflation Rate (%)	3.1
Discount Rate (%)	10.5
Weighted Average Smoothing Constant	0.3
Marginal Income Tax Rate (%)	39.4
Number of Years of Future Cash Flow to consider in Ability to Pay Assessment	5
Penalty Payment Schedule (2, 3, 4, or 5 years)	<input type="checkbox"/>

Note: You do not need to enter a value for the Penalty Payment Schedule if you intend to have the firm pay the penalty in one lump sum.

Continue Cancel Help

4. Environmental Expenditures Screen⁹

In order to perform its analysis, ABEL requires additional information in some cases. The "Environmental Expenditures" screen is shown in Exhibit 3-10. The screen prompts you to enter the following information:

⁹ This presentation illustrates the screens the user will encounter for an ABEL run involving a violation for any statute except a Superfund case. For a complete explanation of a Superfund ABEL run, please consult Chapter 5.

- **Pollution Control Investment Date or Penalty Payment Year:** Enter the date on which the environmental expenditures or penalties are to be paid. You must enter four digits for the appropriate year (e.g., enter 1996, instead of 96). If you have a case in which the violator will pay the penalty in annual installments (i.e., penalty payment schedule is greater than 1 year), you should enter the year in which the firm will make its *first payment* as the penalty payment year.
- **Proposed Lump-Sum Settlement Penalty:** Enter the amount of the proposed lump-sum settlement penalty. If this figure is unavailable or you would like to assess the maximum amount of money the firm will generate over the next five years, enter zero.
- **Depreciable Capital Cost of New Investment:** If the firm will be required to make an investment in pollution control equipment, enter the initial capital cost of that investment and the year-dollars in which it is expressed. Depreciable expenditures usually apply to tangible items that wear out over a number of years, such as a groundwater monitoring system or an air pollution control device. The depreciable capital cost should include the purchase cost of the equipment as well as the installation costs. This value should not include non-depreciable costs associated with the new investment, such as the purchase of land. If the depreciable capital cost value is an estimate of the current costs of installing new equipment, the estimate is probably in this year's dollars. If an estimate was made in an earlier year, consult the source of this estimate to determine when it was made. If none of the firm's pollution control investment costs are for depreciable items, enter zero.
- **Non-Depreciable, Non-Tax-Deductible One-Time Costs:** Enter any costs associated with a new pollution control investment that are not depreciable, and cannot be deducted for tax purposes. One common non-depreciable cost is the purchase of land. Also enter the year-dollars in which these costs are measured. Enter a zero if this cost category is not applicable.
- **Non-Depreciable, Tax-Deductible One-Time Costs:** Enter costs that are not depreciable but may be deducted from taxable income. This category includes one-time costs such as funding a site cleanup, establishing a record keeping system, or training employees. Also enter the year-dollars of these costs. Enter zero if the category is not applicable.
- **Annual Costs:** Enter any annual, recurring costs associated with operating and maintaining the required pollution control equipment or monitoring a

site. Also, include the year-dollars in which the costs are expressed. The figure in this category should reflect the average annual incremental costs associated with monitoring and/or maintaining the required environmental equipment. These costs include any changes in the costs of labor, power, water, raw materials and supplies, recurring training of employees, insurance premiums and any change in annual property taxes. The value of operating and maintenance (O&M) credits should also be considered in estimating the annual incremental costs. O&M credits represent actual O&M cost savings such as heat recovery and product or byproduct recovery. For example, the installation of new pollution control equipment may reduce certain costs (such as sludge disposal) that were associated with operations during the period of noncompliance. If the resulting incremental O&M cost is negative (i.e., there is a net cost savings from the new pollution control equipment), the negative figure may be used in ABEL. The annual costs should also reflect any annual lease payments for pollution control equipment. However, the annual costs should not include annualized capital recovery, interest payments, or depreciation. If there are not any annual costs, enter zero.

In the example shown in Exhibit 3-10, EPA seeks a \$250,000 penalty payment from Town Tool for its alleged RCRA violations. Town Tool also must invest \$20,000 in depreciable capital equipment. After completing these inputs, click the "Continue" button.

Exhibit 3-10

"ENVIRONMENTAL EXPENDITURES" SCREEN

Environmental Expenditures		
Investment or Penalty Payment Year	1997	
	Value	Year Dollars
Lump-Sum Settlement Penalty	\$250,000	
Depreciable Capital Cost	\$20,000	1997
Non-Depreciable, Non-Tax-Deductible One-Time Costs		
Non-Depreciable, Tax-Deductible One-Time Costs		
Annual Costs		
<div>Continue</div> <div>Cancel</div> <div>Help</div>		

5. Review of Inputs

After clicking the "Continue" button on the "Environmental Expenditures" screen, the "Data Input Screen Selection" screen will reappear (see Exhibit 3-5). If you wish to review or edit any of your inputs, click the appropriate row and then click the "View/Edit" button. The most effective means of verifying data inputs, however, is the data summary function on the "Main" screen (see Exhibit 3-2). Click the "Exit Input" button on the "Data Input Screen Selection" screen (see Exhibit 3-5) to return to the "Main" screen. Then click the "Data Summary" button. The "Data Summary" screen will appear as illustrated in Exhibit 3-11.

The "Data Summary" screen summarizes the information you entered from the firm's tax forms. Use the arrow keys at the bottom and on the left side of the screen to scroll through the information. If you wish to print this summary, click the "Print" button. You may also click the "Help" button for an explanation of the summary screen. Clicking the "Return" button will bring you back to the "Main" screen. Click "Next" to view the "Environmental Expenditures Summary" screen. This screen allows you to review information entered on the "Environmental Expenditures" screen. Click "Print" to print the summary. Click "Help" for more information. Click "Return" to return to the "Data Summary" screen, or click "Exit" to return to the "Main" screen.

Printing your data summary is the best method of verifying data inputs. Carefully cross-check the printed data summary with the firm's tax forms. To correct any errors, proceed to the "Main" Screen (i.e., Exhibit 3-2) and select "Input." From the next screen ("Data Input Screen Selection" shown in Exhibit 3-5), you can select the particular data item that needs correction.

Exhibit 3-11

"DATA SUMMARY" SCREENS

Data Summary			
Year	1996	1995	1994
Gross Receipts or Sales Less Returns and Allowances	1166708	1118814	925914
Cost of Goods Sold and/or Operations	828566	890456	744846
Interest Expense	0	0	360
Depreciation	60085	52075	49631
Depletion	0	0	0
Amortization	0	0	0
Taxable Income Before NOL and Special Deductions	2023	16580	1910
NOL Deductions	0	0	0
Special Deductions	0	0	0
Total Tax	303	2487	287
Credit From Regulated Investment Companies	0	0	0
Credit for Federal Tax on Fuels	0	0	0
Cash	61247	76316	39378
Trade Notes and Accounts Receivable Less Allowance for Bad Debts	197831	175573	187016
Inventories	10631	11653	33810
U.S. Government Obligations	0	0	0
Tax-Exempt Securities	0	0	0
Other Current Assets	3447	3655	4844
Accounts Payable	15885	19023	15096
Mortgages, Notes, Bonds Payable in Less Than One Year	0	0	12000

Return Next Print Help

Environmental Expenditures Summary		
	Amount	Year
Investment or Penalty Payment Year		1997
Lump-Sum Settlement Penalty	250000	
Depreciable Capital Cost	20000	1997
Non-Depreciable, Non-Tax-Deductable Capital Costs		
Non-Depreciable, Tax-Deductable One-Time Costs		
Annual Costs		

Return Previous Print Help

C. ANALYSIS AND OUTPUT

To execute the ABEL analysis, you must access the "Main" screen (i.e., Exhibit 3-2). From the "Main" screen, click the "Run" button to perform an ability to pay analysis. After clicking "Run," the "Reports in Generation Screen" will appear as shown in Exhibit 3-12. You have the choice to generate output for only Financial Profile results or Ability to Pay Analysis, or both. Simply select the option you desire by clicking on the appropriate line. You can generate output to either the screen or the printer. If you wish to generate the reports to the screen, select "Screen" and click "Generate." If you wish to print your reports directly, without viewing them on the screen, select "Printer" and click "Generate." Should you wish to stop generating the results after selecting "Generate," click the red "Stop" sign in the bottom corner of the screen.

You may view the Financial Profile report, the Ability to Pay Analysis, and the "Reports in Generation" screen by toggling between them. If you are running ABEL in Windows™ 3.x, use the "Alt" and "Tab" keys on your keyboard. If you are running ABEL using Windows™ 95, use the relevant toggle buttons at the bottom of your screen. After you have completed your analysis, return to the "Reports in Generation" screen and click "Exit;" and ABEL will return you to the "Main" Screen. For more information about how to interpret ABEL results, please consult Chapter 4.

Exhibit 3-12

"REPORTS IN GENERATION" SCREEN

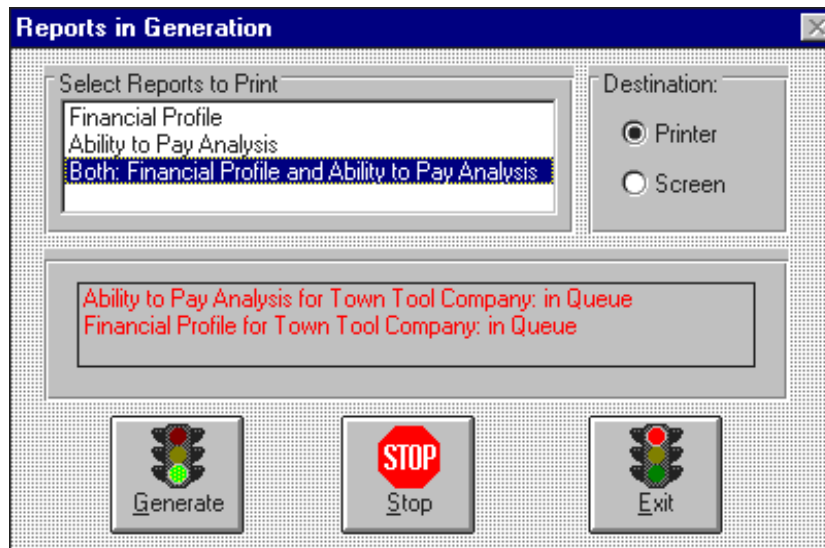


Exhibit 3-13

"PART 1 REPORT" SCREEN¹⁰

A B C D E

F

Financial Profile for Town Tool Company Report			
1 of 1+	Total: 4	100%	4 of 4
2/14/98			
Financial Profile			
In Dollars			
Town Tool Company			
C Corporation, Tax Form 1120			
Run Description: \$250,000 Penalty			
	1996	1995	1994
Balance Sheet			
Assets			
Cash	\$ 61,247	\$ 76,316	\$ 39,378
Accounts Receivable	\$ 197,831	\$ 175,573	\$ 187,016
Inventories	\$ 10,631	\$ 11,653	\$ 33,810
U.S. Government Obligations	\$ 0	\$ 0	\$ 0
Tax-Exempt Securities	\$ 0	\$ 0	\$ 0
Other Current Assets	\$ 3,447	\$ 3,655	\$ 4,844
All Other Assets*	\$ 191,447	\$ 144,007	\$ 106,522
Total Assets	\$ 464,603	\$ 411,204	\$ 371,570
Liabilities			
Accounts Payable	\$ 15,885	\$ 19,023	\$ 15,096

¹⁰ Note that the letters above the screen do not appear on your version of ABEL 1998 (e.g., A through F). The letters were added as an aid for discussion purposes only.

Exhibit 3-13 illustrates Part 1 of an ABEL report as generated to the screen. To understand how to move about the screen, please refer to the letters above the screen. The arrow under "A" allows you to move from the page of the report you are currently viewing to the next page in sequence (i.e., you may move from page 1 of the report to page 2). The arrow under "B" allows you to move from the page you are currently viewing to the last page of the report. Note that the two arrows in the upper left hand side of the screen work in exactly the opposite direction. The printer box below "C" allows you to print your results directly. You may specify whether you wish to print all pages or a selection of pages. The envelope under "D" allows you to export the case output into another computer program. This feature exports the output as a text file (i.e., not including the calculations). To use this feature, click on the box under "D" and select the format in which you wish to save the file as well as the destination directory. The box under "E" allows you to adjust the magnification under which you review your results. Finally, the boxes under letter "F" allow you to minimize or maximize your results. Depending upon your particular computer, these boxes may also appear as arrows, but work the same. You may move about the Part 2 Reports in exactly the same manner.

When you finish reviewing your analysis, click the "Exit" button contained in the "Reports in Generation" screen (i.e., Exhibit 3-12) to return to the "Main" screen (i.e., Exhibit 3-2). You may now begin a new ability to pay analysis or exit the program entirely by clicking the "Exit" button.

D. MODIFYING MODEL RUNS AND EXPORTING CASES

After completing an ABEL analysis, you can either end the session or conduct a second calculation of the firm's ability to pay using different input variables. This section outlines the procedure for changing data inputs and the model's default values after you complete your initial run.

1. Modifying Data Inputs and Default Values

Three different kinds of input can be changed in the ABEL model: 1) data entered from the firm's tax forms; 2) the default values the model uses to analyze the firm's financial data; and 3) the penalty amount sought by EPA. Changing any of these values is simple within the ABEL Model's format, as follows:

- From the "Main" screen (i.e., Exhibit 3-2), select the particular case you would like to modify (i.e., Town Tool Company).
- Click the "Edit" button to bring up the "Case Description Details" screen (i.e., Exhibit 3-3). At a minimum, change the "Run Description" located at the base of the screen so it describes the particular modification(s) of your new run. Also, make any other changes you would like reflected on this screen in the new run, such as the number of years of tax information.

- If you want to change data input, click the "Input" button. Then, within the input screens find the data you want to change by clicking the "View/Edit" button for the appropriate screen. Note that you do not have to scroll through data you have already entered; for example, if you need to review the oldest year of tax data, you do not have to first examine the more recent years of data. Instead, you can select the specific year of data you need to edit in the tax data screen.
- After altering your data, you must re-run the ABEL analysis to view the results of your changes on the firm's financial status and ability to pay.

If you want to change the model's default values, select the model's "Model Default Values" screen from the "Data Input Screen Selection" screen (i.e., Exhibit 3-5) and click the "View/Edit" button. The "Model Default Values" screen (i.e., Exhibit 3-9) will appear, allowing you to change the default values.

If you want to change the penalty amount, select the model's "Environmental Expenditures" screen from the "Data Input Screen Selection" screen (i.e., Exhibit 3-5) and click the "View/Edit" button. The "Environmental Expenditures" screen (i.e., Exhibit 3-10) will appear, allowing you to change the penalty amount.

When you are finished, click the "Continue" button to save the new values and move to the next screen. Now the model will use the newly input values to re-calculate the firm's ability to fund a penalty or contribution. To view the new results, re-run the ABEL analysis by clicking the "Run" button on the "Main" screen.

2. Multiple Analyses of a Firm

Under some circumstances, you may wish to examine the sensitivity of the model's results to changes in particular data inputs or default values. For example, if a firm projects that its income will be significantly different in the future than in the recent past (as reflected on the federal income tax forms), you may want to see how much the model's results change when this new income information is used.

To conduct multiple (sometimes termed "sensitivity") analyses of the same firm using the ABEL Model, you can copy the initial case file for the firm. This copy contains all of the case's original data inputs and default values. You can then rename and modify the case for the sensitivity analysis. The steps to do so are as follows:

- Go to the "Main" screen of the model (i.e., Exhibit 3-2).
- Select the existing case for which you would like to conduct a sensitivity analysis. For example, select the "Town Tool Company" case shown in Exhibit 3-2.

- Click the "Copy" button. This selection will trigger a message stating "Are you sure that you want to create a duplicate case Town Tool Company?" Click "Yes." The model will then issue a message stating "The new case will be titled Town Tool Compan_NEW." Click "OK" and the new case will appear on the screen.
- At this stage, you may wish to alter the case name, "Town Tool Compan_NEW." To do so, click "Town Tool Compan_NEW" to select this case. Then click the "Edit" button to pull up the "Case Description Details" screen (i.e., Exhibit 3-3). You may then alter the name (e.g., change it to "Town Tool Company 2" to indicate that it is version 2 of the Town Tool case). You may also wish to delete the "__NEW" from the case name and change the run description so that you have two cases with the same firm name but unique descriptions.
- Follow the instructions above in Section D.1 to then change a particular input or model default parameter.
- If you plan to run a large number of sensitivity analyses for a particular case, you should create and use a separate output directory (as specified in the "Welcome" screen shown in Exhibit 3-1) to store the case files for that firm.

3. Modifying the Number of Years of Tax Return Information

If you receive the most recent year of tax return information for a firm you analyzed in the past, you may wish to alter an existing case file to update your analysis. Select the case by name on the "Main" screen and click "Edit." Change the "Number of Years of Tax Info" and the "Most Recent Year of Tax Info" on the "Case Description Details" screen to reflect the new information. If you already have 5 years of tax return information, you may simply change the "Most Recent Year of Tax Info." This will allow you to enter the new information and will **permanently delete** the tax return information from the least recent year. If you think you may need the tax return information for the least recent year in future analyses, you should copy the case file on the "Main" screen prior to making any changes to the tax return information on the "Case Description Details" screen.

In certain case-specific situations you may wish to consider only a few years of a firm's tax return information in an ability to pay assessment. For example, if you entered 5 years of tax return data and then learn from the violator or the attorney involved in the matter that only the most recent three years of financial information accurately reflect the firm's future financial condition, you may decide to change the "Number of Years of Tax Info" to 3 years. In this case you should change the "Number of Years of Tax Info" from 5 to 3 on the "Case Description Details" screen to only consider the firm's tax return information from the most recent 3 years. When changing this figure, data from the 2 least recent years will be **permanently deleted**. If you think that you may wish to access this data again in the future you should copy the case file prior to making any changes to the "Number of Years of Tax Info."

4. Exporting Cases

You may wish to transfer a particular case file to another analyst so that he or she can further evaluate the case without re-entering all of the data. Likewise, you may wish to transfer a group of cases concerning one firm to a separate directory designated for that firm. The steps to export a case are as follows:

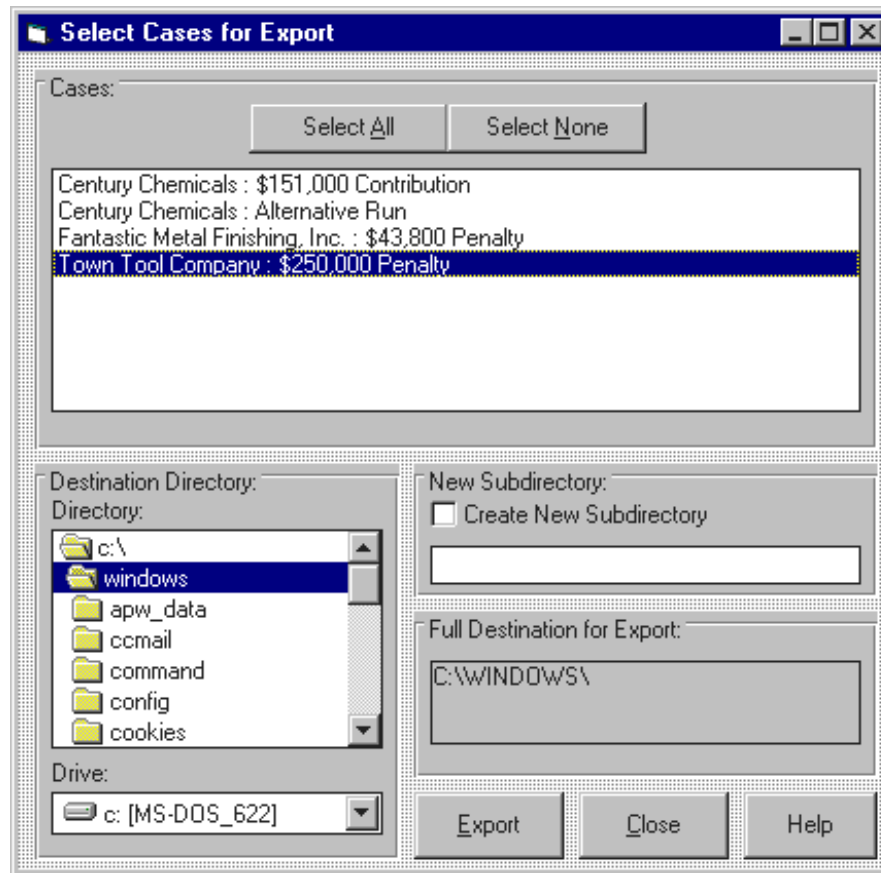
- Go to the "Main" screen of the model (i.e., Exhibit 3-2).
- Click the "Export" button to pull up the "Select Cases for Export" screen, as shown in Exhibit 3-14. Then select the case or cases you wish to export by clicking their names (or clicking the "Select All" button to select all of them).
- Specify the export "Destination Directory." The model automatically displays the directory you initially specified when you entered the program in the "Welcome" screen (i.e., Exhibit 3-1). *You must specify a different directory to which you will export the cases from the one you are currently using.* For example, if you want to export the cases to a floppy disk, specify either the a:\ or the b:\ drive, as appropriate. Alternatively, if you want to export the case(s) to a new subdirectory within your current directory, click "Create New Subdirectory." You may then enter the name of the new subdirectory (e.g., Full Destination for Export) that you wish to create.
- After you have entered the appropriate directory destination and highlighted the cases you wish to export, click the "Export" button. A message will appear stating "Exporting cases to [destination directory selected]. Continue?" Click the "Yes" button. A message affirming that your cases have been transferred will now appear. Click "OK."

After exporting the case files, you must click the "Close" button in order to return to the "Main" screen. Note that when you examine the contents of the destination directory to which the case(s) were exported, it contains the ABELCASE.MDB file storing the cases.

To access the exported cases in the destination directory, the user must specify the destination directory as the output directory on the "Welcome" screen of the model. If the analyst wishes to transfer these cases again, into another directory, he or she may use the procedure noted above to export the case file again. Alternatively, the analyst can copy the case file "ABELCASE.MDB" to a different directory using the WindowsTM File Manager.

Exhibit 3-14

"SELECT CASES FOR EXPORT" SCREEN



The ABEL analysis presents a comprehensive summary of a firm's financial status and quantifies its ability to pay a penalty or contribution. This chapter describes the ABEL Model's output. Section A discusses the model's financial profile section. Section B presents a detailed discussion about the five financial ratios generated for each year of tax return data. Section C discusses how the ABEL Model uses the tax return information to determine a firm's ability to pay for an environmental expenditure. Finally, Section D discusses the model's default values, explains their application, and describes instances that warrant adjustment.

ABEL output consists of three major sections. The first section provides a snapshot of the firm's financial position. It summarizes the income information provided in the firm's tax returns by illustrating a basic balance sheet, income statement, and statement of cash flows. The second section of the output displays five financial ratios for each year of tax return data. Financial ratios are commonly used by analysts to evaluate a firm's viability and financial structure. The last section of the output quantifies a firm's ability to pay for an environmental expenditure. To make this determination, ABEL uses three to five years of a firm's tax return data to project one to five years of internally generated, after-tax cash flows.¹ After you have finished entering all of the data inputs for a specific case, you may conduct an ABEL analysis by clicking "Run" on the "Main" screen.

A. FINANCIAL PROFILE

As shown in Exhibit 4-1, the first section of the ABEL output provides a summary balance sheet, income statement, and statement of historic cash flows for the firm. These statements are developed using the model inputs entered for each specific case. This financial profile provides useful summary information on the firm's assets and liabilities, income and expenses, and historic cash flows. The information can be used to determine possible trends in the firm's past performance

¹ As discussed in Section D of this chapter, you can adjust the number of years of future cash flow considered available for penalty or contribution to EPA.

and to identify balance sheet or income statement items that exhibit considerable volatility. Users who are unfamiliar with financial information may find it difficult to understand or interpret this profile. For those users, we provide a primer on reading and understanding financial statements in Appendix B. Nevertheless, you do not need to execute or understand a firm's Financial Profile to determine a firm's ability to pay for settlement purposes. You may proceed directly to the Ability to Pay Analysis.

1. Balance Sheet

ABEL uses information you have entered for accounts receivable, cash, inventories, U.S. government obligations, tax-exempt securities, and other current assets to compute a firm's total assets, the first part of the balance sheet. ABEL also uses information you have entered for accounts payable, mortgages and bonds payable in less than one year, other current liabilities, loans from stockholders, mortgages and bonds payable in more than one year, and other liabilities to compute the firm's total liabilities. It also provides the firm's stockholders' equity, an important indicator of a firm's overall viability. Note that "all other assets" is calculated internally by the ABEL model to reconcile a firm's total assets with its total liabilities and stockholders' equity.

2. Income Statement

The summary income statement provides information on the firm's income and expenses. This information is critical to assessing the overall profitability of the firm and any trends in its performance over time. ABEL uses the information you have entered for gross sales and costs of goods sold to calculate a firm's operating profit. ABEL then subtracts interest expense, depreciation, depletion, amortization, and other expenses from operating profit to reproduce the firm's taxable income. ABEL also calculates other expenses (income) internally to ensure that operating profit less total expenses is equivalent to taxable income before net operating loss (NOL).

3. Statement of Historic Cash Flows

ABEL provides a table showing the firm's cash flows from the historical data entered during the data input session. This table assists a financial analyst in understanding the relationship between the firm's historical and projected cash flows.

The table illustrates a firm's historic after-tax cash flow by subtracting taxes and adding back depreciation, amortization, depletion, income not included in return, credit for regulated investment companies, and credit for federal tax on fuels to a firm's taxable income before net operating loss deductions entered during the data input session. ABEL adds back these expenses because they do

not represent actual cash transfers.² ABEL then calculates a firm's historic pre-tax annual cash flow by adding back taxes paid. This "pre-tax cash flow" shows the historic pre-tax internally generated cash flows by year for the firm under analysis expressed in their respective years' dollars. Finally, ABEL computes a firm's inflation adjusted pre-tax cash flow using the inflation rate entered on the "Model Default Values" screen. This column, "inflation-adjusted pre-tax cash flow," shows the same pre-tax cash flow values, but expressed in current dollars so that they can be compared on an inflation-adjusted basis. Each calculation is based on tax return data entered during the ABEL input session.

These cash flow values represent cash generated by the firm after meeting all of its business expenses and are considered available to fund a penalty payment. As a result, they are a critical input in ABEL's calculations of ability to pay. If a firm has positive cash flow, you can expect that ABEL will conclude the firm can pay some amount. If the values are negative, the ABEL result will also be negative.

² For more information about how to evaluate these expenses, consult Appendix B, Understanding ABEL's Financial Profile Results.

Financial Profile

In Dollars

Exhibit 4-1

Town Tool Company

C Corporation, Tax Form 1120

Run Description: \$250,000 Penalty

	1996	1995	1994	1993
Balance Sheet				
Assets				
Cash	\$ 61,247	\$ 76,316	\$ 39,378	\$ 56,838
Accounts Receivable	\$ 197,831	\$ 175,573	\$ 187,016	\$ 194,861
Inventories	\$ 10,631	\$ 11,653	\$ 33,810	\$ 23,659
U.S. Government Obligations	\$ 0	\$ 0	\$ 0	\$ 0
Tax-Exempt Securities	\$ 0	\$ 0	\$ 0	\$ 0
Other Current Assets	\$ 3,447	\$ 3,655	\$ 4,844	\$ 2,663
All Other Assets*	\$ 191,447	\$ 144,007	\$ 106,522	\$ 114,709
Total Assets	\$ 464,603	\$ 411,204	\$ 371,570	\$ 392,730
Liabilities				
Accounts Payable	\$ 15,885	\$ 19,023	\$ 15,096	\$ 80,802
Mortgages, Bonds Payable in < 1 Year	\$ 0	\$ 0	\$ 12,000	\$ 12,000
Other Current Liabilities	\$ 57,023	\$ 61,721	\$ 41,355	\$ 23,732
Loans from Stockholders	\$ 53,420	\$ 92,068	\$ 33,039	\$ 6,449
Mortgages, Bonds Payable in > 1 Year	\$ 0	\$ 0	\$ 45,500	\$ 46,500
Other Liabilities	\$ 0	\$ 0	\$ 0	\$ 0
Total Liabilities	\$ 126,328	\$ 172,812	\$ 146,990	\$ 169,483
Stockholders' Equity	\$ 338,275	\$ 238,392	\$ 224,580	\$ 223,247
Total Liabilities and Stockholders' Equity	\$ 464,603	\$ 411,204	\$ 371,570	\$ 392,730

Income Statement				
Gross Sales	\$ 1,166,708	\$ 1,118,814	\$ 925,914	\$ 797,194
Cost of Goods Sold	\$ 828,566	\$ 890,456	\$ 744,846	\$ 205,648
Operating Profit	\$ 338,142	\$ 228,358	\$ 181,068	\$ 591,546
Other Expenses and Income				
Interest Expense	\$ 0	\$ 0	\$ 360	\$ 4,950
Depreciation	\$ 60,085	\$ 52,075	\$ 49,631	\$ 31,722
Depletion and Amortization	\$ 0	\$ 0	\$ 0	\$ 0
Other Expenses (Income)**	\$ 276,034	\$ 159,703	\$ 129,167	\$ 522,677
Total Expenses (Income)	\$ 336,119	\$ 211,778	\$ 179,158	\$ 559,349
Taxable Income Before NOL	\$ 2,023	\$ 16,580	\$ 1,910	\$ 32,197

Summary of Estimated Cash Flow				
Taxable Income Before NOL	\$ 2,023	\$ 16,580	\$ 1,910	\$ 32,197
Tax	\$ (303)	\$ (2,487)	\$ (287)	\$ (4,830)
Credit for Regulated Investment	\$ 0	\$ 0	\$ 0	\$ 0
Credit for Federal Fuels	\$ 0	\$ 0	\$ 0	\$ 0
Depreciation	\$ 60,085	\$ 52,075	\$ 49,631	\$ 31,722
Depletion and Amortization	\$ 0	\$ 0	\$ 0	\$ 0
Income Not Included on Return	\$ 0	\$ 0	\$ 0	\$ 0
Available After-Tax Cash Flow	\$ 61,805	\$ 66,168	\$ 51,254	\$ 59,089
Available Pre-Tax Cash Flow	\$ 62,108	\$ 68,655	\$ 51,541	\$ 63,919
Adjusted for Inflation	\$ 64,033	\$ 72,978	\$ 56,484	\$ 72,221

* May include loans to stockholders, mortgage and real estate loans, other investments, buildings and other depreciable assets, depletable assets, land, intangible assets, and other long-term assets; see Schedule L of firm's federal income tax return.

** Includes additional income categories listed on page 1, Income Section, of firms's federal income tax return and additional expense categories listed on page 1, Deductions Section, of firms's federal income tax return.

B. FINANCIAL RATIOS

In the second section of the results, ABEL generates five financial ratios for each year of tax return data. Financial ratios are commonly used by analysts to evaluate a firm's viability and its financial structure. ABEL indicates whether the firm's ratios are better or worse than target (or threshold) values for each year, and briefly summarizes the implications of the ratios' values.³ ABEL also provides an overall assessment that incorporates all of the firm's ratio results for the most recent year of tax return data.

If all of the firm's ratios are strong relative to the target values and do not show significantly deteriorating trends, the firm is most likely currently in good financial health. If only some of the ratios show acceptable values however, the firm's situation may be more uncertain. **Poor ratios do not necessarily indicate that a firm will be unable to pay proposed environmental expenditures.** The ratio analysis should always be used in conjunction with the conclusions drawn in the ability to pay analysis.

The five key financial health indicators calculated by ABEL are: (1) the debt to equity ratio, (2) the current ratio, (3) the times interest earned ratio, (4) Beaver's ratio, and (5) Altman's Z-Score. The interpretation of each of these ratios is shown below and the method for calculating each ratio is presented in Appendix A. ABEL provides the following outputs:

- A summary table of the five ratios for each year of tax return data.
- An explanation of the individual ratios, including a comparison of the firm's ratios with the ABEL target values.
- An overall conclusion regarding the firm's financial condition based on ratios from the most recent year.

The output is presented in Exhibit 4-2. The most recent year's data will be in the left-most column. If you have provided fewer than five years of data, the table will only display the relevant number of data columns, as illustrated by the four shown in the exhibit.

³ ABEL's target values come from a variety of sources and were chosen because they are generic, non-industry-specific standards that are commonly applied. One of the sources used is Financial Tests as an Option for Demonstrating Financial Responsibility, Volume II: Text, by International Research and Technology Corporation, November 25, 1980. More sophisticated users may want to compare the ratio results to those specifically calculated for the firm's industry or to evaluate ratio results over time. This information may be found, for example, in Dun and Bradstreet's industry summary financial data.

1. Debt to Equity Ratio

The debt to equity ratio (D/E) is defined as the firm's total liabilities divided by its stockholders' equity. This ratio measures the degree to which debt constitutes the company's financing. Four conclusions are possible as shown below; however, a firm could fall into one category during a given year and the other category during the next year. Similar variation may occur with the other ratios as well. ABEL's D/E conclusions are based on the following decision rules:

- A D/E less than 1.5 but greater than or equal to zero generally indicates that a firm has additional debt capacity.⁴
- A D/E greater than 1.5 generally indicates that a firm may have difficulty borrowing additional capital.
- A D/E less than zero indicates that a firm has negative stockholders' equity, an extremely poor financial situation.
- A D/E of "na" indicates that the firm's stockholders' equity is zero, an extremely serious financial condition.

2. Current Ratio

The current ratio (CR) is defined as the firm's current assets divided by its liabilities. The ratio assesses whether the firm will be able to cover its short-term debts using cash and other current assets which can easily be liquidated. Five conclusions are possible:

- A CR greater than 2.0 generally indicates that a firm has good liquidity.
- A CR between 1.0 and 2.0 indicates that the firm may suffer from liquidity problems.
- A CR less than 1.0 indicates that the firm has serious liquidity problems.
- When a firm's current assets are greater than zero, a CR of "na" generally indicates that the firm has good liquidity.

⁴ Note that acceptable debt ratios vary considerably with industry. This conclusion represents a conservative "rule of thumb" but may not apply in all cases.

- When a firm's current assets are equal to zero, a CR of "na" indicates that the firm may suffer from liquidity problems.

3. **Times Interest Earned Ratio**

The times interest earned ratio (TIE) is defined as the firm's earnings before interest and taxes divided by its interest expense payments. This ratio indicates how easily the firm can pay the interest expense on its debt. Three conclusions are possible:

- A TIE greater than 2.0 generally indicates that the firm is able to meet its interest payments.
- A TIE less than 2.0 indicates that the firm may have trouble meeting future interest payments. As the TIE decreases, the likelihood and potential severity of the firm experiencing problems in meeting those payments increase.
- A TIE of "na" indicates that the firm had no interest expense in that year. This result may indicate a very poor financial condition because the firm has likely fallen behind its debt servicing requirements, or it may indicate that the firm is carrying no debt, a sign of strong financial health.

4. **Beaver's Ratio**

Beaver's Ratio (BR) is defined as the firm's after-tax cash flow divided by its total liabilities. The BR provides a useful measure for predicting a firm's long term solvency and likelihood of staying in business. In particular, the BR indicates whether the firm's internally generated cash flow is sufficient to meet its current and long-term financial obligations. Four conclusions are possible:

- A BR greater than 0.2 generally indicates that the firm is solvent and healthy.
- A BR between 0.1 and 0.2 is inconclusive.
- A BR less than 0.1 generally indicates poor financial health.
- A BR of "na" indicates that the firm had no liabilities in (year). Because this situation is extremely unusual, you should check the accuracy of the firm's tax returns against all inputs before proceeding.

5. Altman's Z-Score

Altman's Z-Score (AZS) is calculated as a weighted average of several financial ratios. AZS is a predictor of firm failure. It is most accurate within two years prior to bankruptcy. Four conclusions are possible:

- An AZS greater than 2.90 indicates that it is unlikely that the firm will be forced into bankruptcy during the coming two years.
- An AZS between 1.23 and 2.90 is inconclusive.
- An AZS less than 1.23 indicates that the firm could be bankrupt within the next two years if its financial situation does not dramatically improve.
- An AZS of "na" indicates that a numerical value could not be computed for (year) because either total assets or total liabilities were equal to zero. Because this situation is extremely unusual, you should check the accuracy of the firm's tax returns against all inputs before proceeding.

6. Most Recent Year Ratio Conclusion

After providing the detailed ratio explanations, ABEL provides a ratio conclusion based on the five financial ratios for only the most recent year. If, however, one or more of the financial ratios is significantly worse than the firm's historic average and the ABEL analysis shows that the firm is unable to pay for environmental expenditures, you may want to consult with a financial analyst to determine the cause of the decline. As previously noted, one of the techniques used by financial analysts to assess changes in a firm's financial health is to examine historic financial ratio trends, like those produced by ABEL in its Financial Profile. The overall ratio conclusion does not analyze these trends, however, as it only assesses the firm's ratios for the most recent year.

As you review the ratio results, consider whether the firm's ratios are improving or worsening over time. Identify any ratios that appear to exhibit considerable variability year to year. If you identify any trends or other interesting items, consult with a financial analyst to interpret the results. Note that these ratios are only a rough measure of a firm's financial condition and can easily be manipulated. Review this information with the appropriate caution and seek assistance from an expert. These ratios should not be the basis of any decision to alter the penalty or contribution of a firm.

In Dollars

Town Tool Company

C Corporation, Tax Form 1120

Run Description: \$250,000 Penalty

	1996	1995	1994	1993
Historical Financial Ratios				
Debt to Equity	0.37	0.72	0.65	0.76
Current Ratio	3.75	3.31	3.87	2.39
Times Interest Earned	na	na	6.31	7.50
Beaver's Ratio	0.49	0.38	0.35	0.35
Altman Z'- Score	4.39	4.24	4.04	3.65

Debt to Equity	0.37	0.72	0.65	0.76
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The debt to equity ratio (D/E) is defined as the firm's total liabilities divided by its stockholders' equity. This ratio measures the degree to which debt constitutes the company's financing.

A D/E less than 1.5 but greater than zero generally indicates that a firm has additional debt capacity. This firm's D/E fell into this category in 1996, 1995, 1994, 1993.

Current Ratio	3.75	3.31	3.87	2.39
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The current ratio (CR) is defined as the firm's current assets divided by its current liabilities. The ratio assesses whether the firm will be able to cover its short-term debts using cash and other current assets that can be easily liquidated.

A CR greater than 2.0 generally indicates that a firm has good liquidity. This firm's CR was strong in 1996, 1995, 1994, 1993.

Times Interest Earned	na	na	6.31	7.50
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The times interest earned ratio (TIE) is defined as the firm's earnings before interest and taxes divided by its interest expense payments. This ratio indicates how easily the firm can pay the interest expense on its debt.

A TIE greater than 2.0 generally indicates that the firm is able to meet its interest payments. This firm fell into this category in 1994, 1993.

A TIE of 'na' indicates that the firm had no interest expense in 1996, 1995.

Beaver's Ratio	0.49	0.38	0.35	0.35
-----------------------	-------------	-------------	-------------	-------------

Beaver's ratio (BR) is defined as the firm's after-tax cash flow divided by its total liabilities. The BR provides a useful measure for predicting a firm's long-term solvency and likelihood of staying in business. In particular, the BR indicates whether the firm's internally generated cash flow is sufficient to meet its current and long-term financial obligations.

A BR greater than 0.2 generally indicates that the firm is solvent and healthy. This firm fell into this category in 1996, 1995, 1994, 1993.

Altman's Z- Score	4.39	4.24	4.04	3.65
--------------------------	-------------	-------------	-------------	-------------

Altman's Z-Score (AZS) is calculated as a weighted average of several financial ratios. AZS is a predictor of firm failure. It is most accurate within two years prior to bankruptcy.

An AZS greater than 2.90 indicates that it is unlikely that the firm will be forced into bankruptcy during the coming two years. This firm's AZS fell into this category in 1996, 1995, 1994, 1993.

This firm's most recent year's financial ratios indicate that:

The firm's financial condition is strong. It likely has additional debt capacity.

Note that although these ratios provide a rough indication of the firm's financial condition, they can easily be misinterpreted. See ABEL User's Manual for a more detailed discussion of these issues.

C. ABILITY TO PAY CONCLUSION

The final section of the ABEL results quantifies the firm's ability to pay for an environmental expenditure. To make this determination, ABEL uses the three to five years of tax return data you entered to project five years of internally generated, after-tax cash flows.⁵ ABEL then compares the present value of these cash flows with the present value of the after-tax cash flows following the environmental expenditures that you have specified.⁶ After making the environmental expenditures, if the present value of the firm's remaining projected cash flows is still positive, ABEL will predict that the firm can afford the expenditure.

While the general methodology for determining a firm's ability to pay is straightforward, the actual details of the calculations are quite complex. Appendix A provides the detailed equations used in the ABEL analysis, as an aid to financial analysts and other interested users. To use ABEL as an ability to pay screening tool, it is not necessary to read Appendix A. All that is needed to successfully use the ABEL program is contained in the main section of this manual.

ABEL produces a summary table, illustrative graphic, and related explanatory text to convey the ability to pay result as shown in Exhibit 4-3. ABEL evaluates the probability that the firm can afford the environmental expenditures that you have proposed. Following the summary analysis, you can choose to print your results, return to the input phase to adjust your inputs and generate revised results, or conclude the ABEL analysis.

1. Summary Table

ABEL first produces a table showing the present value of the firm's projected cash flows over five years (or for fewer years as specified during the input phase), both including and excluding the environmental expenditures that you specified. This table will be the focus of almost all ABEL analyses. Since the firm's projected cash flows are based on a statistical extrapolation of the firm's historical cash flows, the table shows projected cash flows at seven different probability levels.

⁵ This discussion assumes that you used the standard default value of 5 years of future cash flow considered available for penalty or contribution to EPA. You may also select 1, 2, 3, or 4 years of future cash flow considered in ability to pay analysis; however, the methodology used in each calculation is exactly the same as the calculations employed for 5 years of cash flow.

⁶ The concept of net present value is based on the principle that "a dollar today is worth more than a dollar a year from now," because today's dollar can be invested immediately to earn a return over the coming year. Therefore, the earlier a cost (or benefit) is incurred, the greater its economic impact. ABEL accounts for this "time value of money" effect by reducing all estimated future cash flows to their present value equivalents. This widely-used technique is known as discounting.

These probabilities reflect the likelihood that the firm will equal or exceed the specified level of cash flow.

In Column 2 of this table, the firm's projected after-tax cash flows are listed. These values represent the likelihood that Town Tool will generate cash flows given an associated probability. For example, ABEL predicts that Town Tool Company can generate total cash flow of \$230,407 with 90 percent probability. These values do not take any environmental expenditures or penalties into consideration.⁷ Column 3 presents the proposed civil penalty, if stipulated. Column 4 reflects the initial pollution control expenditures required of the firm, if applicable. Column 5 presents the present value of the annual pollution control expenditures required to maintain any capital investments.

Column 6 presents the cash flow ABEL predicts will be generated by the firm after pollution control expenditures and penalty payment. If you have entered no pollution control expenditures or penalty payment during the input phase, Columns 3 through 5 will appear with zeros. ABEL provides you with a range of cash flows that might be generated based on its statistical analysis.

2. Summary Graphic

ABEL also prepares a summary graphic illustrating the results presented in the summary table. As indicated in this graphic, the likelihood Town Tool Company will generate a specific level of cash flow declines as the magnitude of the cash flows increases.

This summary graphic can be a useful tool to assess the reliability of ABEL's predicted future cash flow. A sharp decline in the curve at the 50, 60, or 70 percent probability level can often be attributed to significant variations in past cash flow. If you notice this kind of variability in combination with a less than 70 percent probability that the firm can pay the proposed penalty or contribution, you may wish to refer the case to a financial analyst. Alternatively, a flat curve over the 50, 60, or 70 percent probability level that declines only after the 90 or 95 percent probability level is often indicative of consistent cash flow.

3. ABEL Conclusion

Following the table and graphic, ABEL prints a message summarizing the firm's ability to pay. This message indicates the probability that the firm can meet the proposed penalty (and/or pollution control expenditures) through its projected cash flow. This estimation of ability to pay is based on funds the firm is expected to generate during the next 5 years. For example, for Town Tool Company:

⁷ The values listed in Column 2 are the present values of five years of projected cash flows.

"ABEL estimates less than 50 percent probability that Town Tool Company can currently afford a penalty of \$250,000 after meeting total Pollution Control Expenditures of \$15,050."

ABEL also predicts the cash flow a firm is likely to generate with 70 percent probability. A 70 percent probability is used because this is one common cut off used by EPA for determining ability to pay. Note, however, that it is ultimately up to the litigation team to determine an appropriate cutoff. For example, for Town Tool Company:

"ABEL estimates a 70 percent probability that Town Tool Company could afford to pay a penalty of \$242,146 after meeting total Pollution Control Expenditures of \$15,050."

Finally, if, during the input phase, you requested to have the penalty payment spread out over a period of years (2 to 5), the model will provide an annual payment amount equivalent to the lump sum payment. If you had specified a penalty payment schedule of 3 years for Town Tool, the result would read:

"During the input phase you requested to have the payment spread over 3 years. A lump-sum payment of \$257,197 is equal to 3 annual payments of \$97,347."

However, if ABEL determines that a violator cannot afford the proposed penalty with a 70 percent probability, or cannot afford any payment with 70 percent probability if you did not enter a penalty amount during the input phase, the model will provide a related conclusion and discuss the possibility of assessing nonessential expenses and other sources of funds. The conclusion will read:

"Note that ABEL's calculations indicate that while Tool Town Company will be able to generate funds over the next five years, there is less than 70 percent certainty that those funds will be sufficient to cover the proposed pollution control expenditures and/or penalty payment. You should review all of your tax form data inputs. If these inputs are correct, then you or a financial analyst should review the firm's tax returns and other financial information to determine if excessive nonessential expenses or assets, or additional debt capacity are available to support these payments. You may also wish to investigate other firms related by common ownership or officers. If no other sources of funds exist, you can consider reducing the civil penalty."

4. Historic Comparison

ABEL may not be an accurate analytic tool in certain instances. In particular, if the firm's performance is worsening, ABEL may overstate its ability to pay. ABEL performs two tests to determine if the firm's most recent year's actual cash flow (derived from the firm's tax return) was significantly worse than its historic average. Based on the results of this test, ABEL may recommend that you change the weighted average smoothing constant standard value, which will place greater weight on the firm's most recent performance in the ability-to-pay calculation. Otherwise, this value should not be changed unless a financial analyst reviews the data and recommends that it be changed. The model will provide the following notification:

"Based on the tax form data provided to ABEL, the most recent year's pre-tax cash flow for X is significantly worse than its inflation-adjusted historic average. If this poor cash flow were to continue in the future, then the ABEL predictions of available cash flow are overly optimistic. Therefore, ABEL recommends that when you have completed reviewing these results, you re-run the analysis using a smoothing constant of 0.7 (see model default values screen in input phase). This larger smoothing constant will weight the most recent year's cash flow more heavily than those of other years' in the ABEL cash flow calculation."

Ability to Pay Analysis

Exhibit 4-3

Town Tool Company
C Corporation, Tax Form 1120

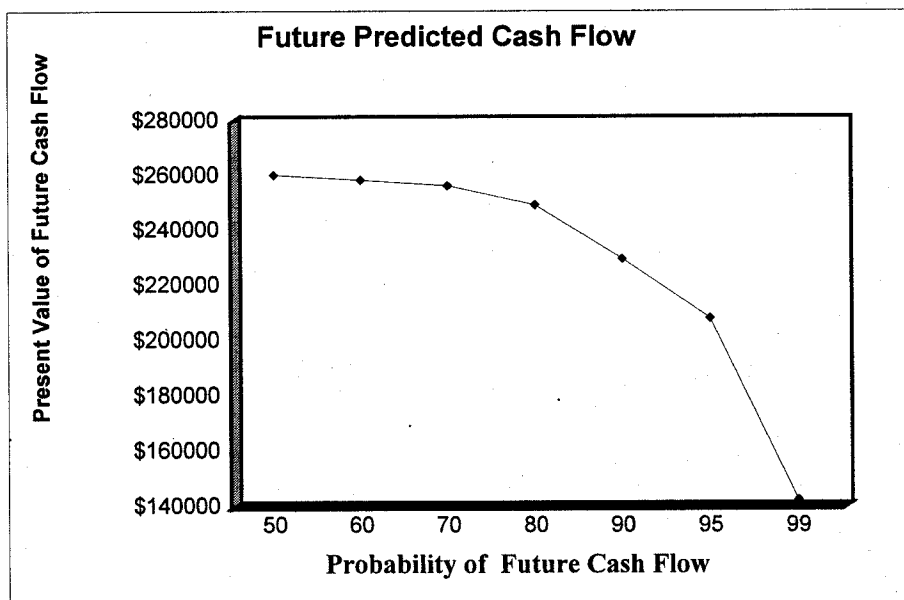
Run Description: \$250,000 Penalty

Penalty Amount: \$250,000 in 1997 dollars

Reinvestment Rate:	0.0
Marginal Income Tax Rate (%):	39.4
Annual Inflation Rate (%):	3.1
Discount Rate (%):	10.5
Weighted Average Smoothing Constant:	0.3
Number of Years of Future Cash Flow:	5
Penalty Payment Schedule:	1

Summary of Predicted Cash Flow

Probability of Cash Flow	Total Cash Flow Generated by Firm	Penalty Payment	Initial Pollution Control Expenditures	Present Value of Annual Pollution Control Costs	Firm Cash Flow Net of Environmental Expenditures
50%	261,127	250,000	15,051	0	-3,924
60%	259,263	250,000	15,051	0	-5,788
70%	257,197	250,000	15,051	0	-7,854
80%	250,179	250,000	15,051	0	-14,872
90%	230,407	250,000	15,051	0	-34,644
95%	208,986	250,000	15,051	0	-56,065
99%	143,437	250,000	15,051	0	-121,614



Conclusions

ABEL estimates less than 50 percent probability that Town Tool Company can currently afford a penalty of \$250,000 after meeting total Pollution Control Expenditures of \$15,050.

ABEL estimates a 70 percent probability that Town Tool Company could afford to pay a penalty of \$242,146 after meeting total Pollution Control Expenditures of \$15,050.

This estimation of ability to pay is based on funds the firm is expected to generate during the next 5 years.

EPA employs the 70 percent probability level as a common cutoff for determining ability to pay. Note, however, that it is ultimately up to the litigation team to determine an appropriate cutoff.

All figures are expressed in Dollars and 1997 year-dollars.

D. ABEL DEFAULT VALUES

The ABEL model gives you the opportunity to review and modify several assumptions, or "standard values" that are used in the analysis. However, you should not alter standard values unless you have a complete understanding of why they are inappropriate for your specific case.

The following standard values are used in the ABEL Model's analysis, and can be accessed by the user in the "Default Parameters" screen:

1. Reinvestment Rate;
2. Marginal Income Tax Rate;
3. Annual Inflation Rate;
4. Discount Rate;
5. Weighted Average Smoothing Constant;
6. Number of Years of Cash Flow Considered Available; and
7. Penalty Payment Schedule.

Certain ABEL standard values are updated annually to reflect changes in interest rates and tax laws, although the method for calculating the value remains the same. Each of the default values is discussed in detail below.

1. Reinvestment Rate

The reinvestment rate determines the portion of a firm's future cash flow that is allocated for reinvestment in depreciating assets. Typically, firms reinvest a portion of their earnings to replace machinery and equipment as it wears out. However, the more a firm reinvests, the less cash it will have available for payment of environmental expenditures.

The reinvestment rate variable determines the fraction of the firm's depreciation expense that you assume the firm will reinvest. ABEL uses a standard value of zero for the reinvestment rate, meaning that no depreciation expenses are allocated to reinvestment. This standard value is based on the assumption that a firm required to pay environmental expenditures should not be constrained from meeting those obligations by the need to replace machinery and equipment. Because ABEL forecasts only five years into the future, the firm is not permanently prevented from replacing such assets; a five-year period of reduced investment should not jeopardize the long-run solvency of most firms. In addition, the firm could continue to reinvest by reducing other expense items, like salaries or marketing expenses.

Under certain circumstances you may wish to alter the reinvestment rate. For example, if you are examining a manufacturer in an industry with rapidly changing technology, such as a microchip producer in the computer industry, it may be reasonable to assume that the manufacturer needs to reinvest in new plant and equipment in order to remain competitive. In this situation, you should

change the reinvestment rate to 1.0 if you wish to allow the manufacturer to invest at the same rate it has purchased plant and equipment in the past. If you enter a value of 1.0, the ABEL calculation will assume full replacement of the depreciated portion of the existing assets, taking inflation into account. Any reinvestment rate between zero and 1.0 allows the manufacturer to use a portion of their future estimated future available cash flow for the purposes of purchasing new plant and equipment. Implicitly, you are allowing for partial replacement of the depreciated portion of the firm's existing assets. You may enter a value in excess of 1.0 to allow for new capital expenditures above and beyond what the firm has purchased in the past.

2. Marginal Income Tax Rate

The marginal income tax rate is the tax rate applied to the last dollar of income earned by a firm. This rate reflects the percentage of income paid for taxes if taxable income were to increase or decrease, and includes both state and federal taxes. The average tax rate is the total tax divided by the total taxable income. It is important to use the marginal tax rate because it is the rate which applies to incremental changes in the firm's tax-deductible expenses and income. This tax rate is used to derive the firm's after-tax cash flow.

The marginal tax rate does not include sales tax, inventory tax, charter tax, or taxes on property. One time tax payments, such as sales taxes on the purchase of equipment, should be included as an investment cost. If one or more of these taxes are paid regularly, then they should be included as an annual cost.

The standard value for this variable is 39.4 percent. The value is based on the marginal federal tax rate at the highest income level (35 percent) and the average of all marginal corporate tax rates imposed by states. This variable reflects the fact that state taxes are deductible from federal income taxes.

The total corporate marginal tax rates are calculated state-by-state in Exhibit 4-4.⁸ If you wish, you can replace the standard value with the value for the state in which the firm files its federal taxes.

⁸ The adjustment is made by multiplying the state rates by a factor equal to one minus the marginal federal tax rate, as shown in the following formula:

$$MTR_{TOTAL} = MTR_{FEDERAL} + [MTR_{STATE} * (1 - MTR_{FEDERAL})]$$

where: $MTR_{FEDERAL}$ = the marginal tax rate at the federal level; and

MTR_{STATE} = the marginal tax rate at the state level

Therefore, if you were to calculate the total marginal tax rate based on a marginal state tax rate of 10%, the result would be 41.5 percent. This calculation is shown below:

$$\begin{aligned} MTR_{TOTAL} &= .35 + [.10 * (1 - .35)] \\ &= .35 + (.10 * .65) \\ &= .35 + .065 \\ &= .415 \\ &= 41.5\% \end{aligned}$$

Exhibit 4-4 TOTAL CORPORATE MARGINAL TAX RATES BY STATE (Percent)	
State	Marginal Tax Rates
Alabama	38.3
Alaska	41.1
Arizona	40.9
Arkansas	39.2
California	40.7
Colorado	38.3
Connecticut	41.8
Delaware	40.7
Florida	38.6
Georgia	38.9
Hawaii	39.2
Idaho	40.2
Illinois	39.7
Indiana	40.1
Iowa	42.8
Kansas	37.6
Kentucky	40.4
Louisiana	40.2
Maine	40.8
Maryland	39.6
Massachusetts	41.2
Michigan	35.0
Minnesota	41.4
Mississippi	38.3
Missouri	39.1
Montana	39.4

Exhibit 4-4 TOTAL CORPORATE MARGINAL TAX RATES BY STATE (Percent)	
State	Marginal Tax Rates
Nebraska	40.1
Nevada	35.0
New Hampshire	39.6
New Jersey	40.0
New Mexico	39.9
New York	40.9
North Carolina	39.7
North Dakota	41.8
Ohio	40.8
Oklahoma	38.9
Oregon	39.3
Pennsylvania	41.5
Rhode Island	40.9
South Carolina	38.3
South Dakota	35.0
Tennessee	38.9
Texas	35.0
Utah	38.3
Vermont	41.3
Virginia	38.9
Washington	35.0
West Virginia	40.9
Wisconsin	40.1
Wyoming	35.0
Standard Value	39.4
Source: Federation of Tax Administrators. Based on a marginal Federal tax rate of 35 percent and State marginal corporate tax rates for 1997.	

3. Annual Inflation Rate

ABEL uses the annual inflation rate to convert a firm's historic financial data into equivalent inflation-adjusted, future-year dollars. The standard value ABEL uses is based on the U.S. Gross National Product (GNP) price deflator, a broad-based measure of the economy-wide inflation rate.⁹ Exhibit 4-5 provides the raw U.S. GNP implicit price deflators and their year-to-year percentage changes. ABEL's standard value for the ten year period ending in 1997 is 3.1 percent.¹⁰ You should not change this value without sufficient justification.

⁹ This measure of inflation is more generalized than that used in BEN. Specifically, BEN uses Chemical Engineering's "Plant Cost Index" (PCI) because it accurately reflects the costs of activities associated with pollution control expenditures. Unlike BEN, the majority of cash flows that ABEL inflates correspond to the firm as a whole. Thus, the inflation rate used in ABEL is tied to the economy-wide inflation rate, not just the inflation rate for capital equipment.

¹⁰ In general, an annual inflation rate is calculated as follows:

$$\left[\left[\frac{\text{Index in final year}}{\text{Index in initial year}} \right]^{1/N} - 1 \right] * 100$$

Where: N = Final year - Initial year

To obtain the standard value, index values for 1997 and 1987 (112.5 and 83.1, respectively) were used to calculate the ten-year average. The calculation is:

$$\left[\left[\frac{112.5}{83.1} \right]^{1/10} - 1 \right] * 100$$

$$= (1.031 - 1) * 100$$

$$= 3.1 \text{ percent}$$

Exhibit 4-5		
U.S. HISTORIC INFLATION RATE		
Year	Implicit Price Deflator Using U.S. GNP (1992 = 100)	Year to Year Change
1982	70.2	6.2%
1983	73.2	4.3%
1984	75.9	3.7%
1985	78.6	3.6%
1986	80.6	2.5%
1987	83.1	3.1%
1988	86.1	3.6%
1989	89.7	4.2%
1990	93.6	4.3%
1991	97.3	3.9%
1992	100.0	3.6%
1993	102.6	3.4%
1994	105.1	3.3%
1995	107.8	3.2%
1996	110.2	3.2%
1997	112.5	3.1%
Source: Economic Report of the President		

4. Discount Rate

ABEL uses the discount rate to express the firm's expected future cash flows in present value terms.¹¹ ABEL uses a standard discount rate of 10.5 percent. This value represents an estimate of

¹¹ The concept of discounting is discussed in the BEN User's Manual, July 1990. The essential aspect of this concept is that a dollar that you receive today is worth more than a dollar that you receive a year from now. For example, you could take a dollar that you receive today and put it in a bank account. In one year, the value of this dollar will have increased as a result of interest earned.

the weighted-average-cost-of-capital (WACC) over the past ten years ending in 1997, for an average firm. The formula used to calculate the WACC for each year is:

$$WACC = [[CBA * (1.0 - TR)] * W_D] + [[TB + R] * W_E]$$

where:

- CBA = Ten-year average return on corporate bond
- TR = Marginal corporate tax rate
- W_D = Fraction of total financing made up of debt
- TB = Ten-year average return on Treasury bonds
- R = Equity risk premia
- W_E = Fraction of total financing made up of equity

Exhibit 4-6 displays the key aspects of the WACC calculation. This standard value will be modified annually. You should not change this variable unless you consult with a financial analyst. ABEL uses the WACC because the model discounts the firm's overall cash flows, rather than those associated with a particular project. The WACC is appropriate since it is the standard discount rate used to evaluate a firm's overall cash flow.

Exhibit 4-6

WEIGHTED AVERAGE COST OF CAPITAL CALCULATIONS

YEAR	COST OF DEBT¹	TAX RATE² (%)	AT DEBT COST	FRACTION OF DEBT³	TEN YEAR T BOND⁴	RISK PREMIUM⁵	EQUITY COST⁶	FRACTION OF EQUITY³	WACC
1988	10.18	38.4	6.27	0.52	8.85	7.5	16.35	0.48	11.15
1989	9.66	38.4	5.95	0.49	8.49	7.5	15.99	0.51	11.07
1990	9.77	38.5	6.01	0.50	8.55	7.5	16.05	0.50	11.03
1991	9.23	38.5	5.68	0.49	7.86	7.5	15.36	0.51	10.63
1992	8.55	38.6	5.25	0.47	7.01	7.5	14.51	0.53	10.15
1993	7.54	39.4	4.57	0.47	5.87	7.5	13.37	0.53	9.23
1994	8.26	39.4	5.01	0.44	7.09	7.5	14.59	0.56	10.33
1995	7.83	39.4	4.74	0.42	6.57	7.5	14.07	0.58	10.15
1996	7.66	39.4	4.64	0.37	6.44	7.5	13.94	0.63	10.03
1997	7.54	39.4	4.57	0.37	6.35	7.5	13.85	0.63	10.42
10 YEAR AVERAGE	8.62		5.27		7.31		14.81		10.47

Notes:

¹ This is the average interest rate paid on corporate bonds. Table 1.35, Federal Reserve Bulletin.

² For further explanation of how the average total corporate marginal tax rate is calculated, see the BEN User's Manual.

³ These weights represent the fraction of financing that is made up of debt or equity. The weights are constructed using data from Standard and Poor's Stock Analyst's Handbook. The equity indexes are adjusted to reflect their market value.

⁴ Treasury bond data from Table 1.35, Federal Reserve Bulletin.

⁵ This is the arithmetic mean of the long-term equity risk premium for 1926 through the most recent year available calculated by Ibbotson Associates.

⁶ For further explanation of the calculation of equity cost of capital, see the BEN User's Manual.

5. Weighted Average Smoothing Constant

The smoothing constant is used to calculate the weighted average of the firm's income. ABEL's default value of the smoothing constant is set to 0.3 to weight the most recent year's income most heavily. The equation in which the smoothing constant is used is discussed in detail in Appendix A.

The smoothing constant assumes that the most recent year of income is the most accurate predictor of the firm's future earnings potential. Therefore, you should not adjust the smoothing constant unless: a) the model issues a flag alerting the user to large variation in total income and a change is warranted, or b) you have other information (such as a written explanation provided by the firm) informing you that the most recent federal tax form is not a good proxy for the firm's future income. In that case, you must decide whether to adjust the smoothing constant, based upon whether you think the year of income causing a large variation is a more accurate predictor than the other years.

Raising the smoothing constant weights the most recent year of income more heavily; lowering it lowers the weight given to the most recent year's income, simultaneously raising the weights given to the other years. See Exhibit 4-7 to determine the precise effects a change to the default smoothing constant will have on the income weights.

If, for example, the firm's most recent year of income is significantly higher than the average, and you believe that year is a much better estimate of future cash flow than the other years, you may wish to increase the smoothing constant, in which case you will need to re-run the ABEL analysis so the model can make all relevant re-calculations and produce new values for weighted average income. However, if you believe the most recent year is significantly larger than the average due to an aberration in income which will not continue in the future, you may wish to lower the smoothing constant, thereby decreasing the weight of this year's income in the calculation of total average income (and income from each source).

Exhibit 4-7			
WEIGHTS ASSIGNED TO EACH YEAR OF DATA WHEN THE WEIGHTED-AVERAGE SMOOTHING CONSTANT EQUALS 0.3			
Year (1 = most recent)	Weights for 3 Years of Data	Weights for 4 Years of Data	Weights for 5 Years of Data
1	0.46	0.39	0.36
2	0.32	0.28	0.25
3	0.22	0.19	0.18
4	--	0.14	0.12
5	--	--	0.09

6. Number of Years of Future Cash Flow to Consider in Ability to Pay

The number of years of cash flow is used to calculate the total amount of the firm's future income considered available to fund a penalty or contribution. The default value is 5 years, but you may also select 1, 2, 3, or 4 years. The model first calculates the firm's annual weighted average cash flow based on past financial information. Next ABEL projects this annual cash flow amount into the future for the number of years of cash flow considered available. The model then calculates the present value of this stream of future cash flow using the discount rate which is also specified on the "Model Default Values" screen. Please consult Appendix A for a detailed description of this calculation.

In some cases, you may wish to reduce the number of years of cash flow considered available for a penalty or contribution to less than 5 years. You may choose to alter the default value if specific circumstances surrounding a case warrant a change or if the specific enforcement policy governing the case suggests using fewer years than the default value of 5.¹² Decreasing the number of years of cash flow considered available decreases the firm's ability to pay a penalty or contribution because the model calculates the lump sum of less than 5 years of future cash flows.

¹² For example, Superfund ability to pay guidance allows for reducing the number of years considered in certain instances, including when revenues and expenses are very erratic, the firm is going through a major restructuring, or other significant changes are occurring. See the discussion of Superfund ABEL in Chapter 5 and the policy document, *General Policy on Superfund Ability to Pay Determinations*, released by EPA's Office of Site Remediation Enforcement, September 30, 1997.

7. Penalty Payment Schedule

This default value may be changed if you are considering a penalty payment scheme where the violator pays the penalty over several years. The standard default value is that the firm will pay a penalty or contribution in one lump-sum payment, or 1 year. You may also choose a penalty payment schedule of 2 to 5 years. Note that allowing the firm to pay its penalty in 2 years (i.e., entering "2" as the penalty payment schedule) actually means that the firm makes one payment on the date the case settles and one payment one year from that date. Spreading the penalty over several years does not affect any of the ABEL Summary Analysis values. *The probability that a firm can afford to pay the environmental expenditures and/or civil penalty remains exactly the same.*¹³

If you choose to spread the penalty over two to five years, ABEL will provide a statement within the analysis indicating how much the violator can afford to pay in annual payments over the specified number of years. It will compute the annual payment figure using the discount rate entered on the "Model Default Values" screen. It will also provide the lump sum penalty information. For more information on this calculation, please see Appendix A, Section D, Ability to Pay Calculations, Step 8.

8. Changes to Standard Value Variables

If you intend to change the value of one of the default values, but wish to retain the analysis that the model has already performed with the default values, you may do so easily. In the case using the pre-set default values, click the "Copy" button in the main screen of the model. The model will ask if copying the file under the old name with "_NEW" attached to it is OK. When you click "OK," the case is copied. You can then save it with a different name, if desired, by changing the applicant name in the "Case Description Details" screen. Alternatively, you can retain the original case name and enter a different run description. Then you may proceed directly to "Input" to change the standard values in the "Default Parameters" screen. You must then re-run the ABEL analysis so the model can re-calculate the applicant's ability to pay based on the new values.

Exhibit 4-8 summarizes each standard value used in the ABEL analysis, as of May 1998. As previously noted, the standard values for the marginal income tax rate, annual inflation rate, and discount rate will be revised annually. The reinvestment rate, weighted average smoothing constant, number of years of cash flow considered available for contribution, and penalty payment schedule will not change.

¹³ The stream of annual penalty payments is calculated so that its present value is the same as the lump-sum penalty payment that was specified in the input section.

Exhibit 4-8 ABEL STANDARD VALUE INPUT VARIABLES (August 1997)	
Variable	Value
Reinvestment Rate	0.00
Marginal Income Tax Rate	39.4%
Annual Inflation Rate	3.1%
Discount Rate	10.5%
Weighted Average Smoothing Constant	0.3
Number of Years of Future Cash Flow Considered in Ability to Pay	5
Penalty Payment Schedule	1

Exhibit 4-9 summarizes how changing standard values affects the ability to pay analysis. The effect noted for each variable indicates the direction in which ABEL's results would change, if the values of all other variables were held constant.

Exhibit 4-9 IMPACT OF CHANGES OF VARIABLE STANDARD VALUES (Holding All Other Variables Constant)		
Variable	Direction of Change	Impact on Ability to Pay
Reinvestment Rate	Increase	Decrease levels of affordable penalties and investments
Marginal Tax Rate	Increase	Increase levels of affordable investments and penalties (provided tax deductible expenditures are required)
Inflation Rate	Increase	Increase levels of affordable investments and penalties ^a
Nominal Discount Rate	Increase	Decrease levels of affordable investments and penalties
Weighted Average Smoothing Constant	Increase	Indeterminate ^b
Number of Years of Future Cash Flow Considered in Ability to Pay	Decrease	Decrease level of affordable investments and penalties
Penalty Payment Schedule	Decrease	No impact on a firm's ability to pay
Notes: If the firm's future projected pre-tax cash flow is less than zero, the direction of the change will be opposite of what is stated above. ^a The impact of changes in the inflation rate may vary from one specific case to another, depending on the relative values of the other variables. Overall, however, an increase in the inflation rate will result in increased net cash flows. ^b The effect of the weighted average smoothing constant on ability to pay depends on specific pre-tax cash flow and income figures.		

E. USING THE ABEL RESULTS

ABEL uses generally accepted accounting and financial methods to generate its conclusions. Note, however, the model employs inputs taken directly from an entity's tax returns, with no independent assessment concerning the quality of this information. Since firms have incentives to minimize taxable income to lower their tax liabilities, ABEL generally provides a conservative estimate of ability to pay. If ABEL concludes that a firm has sufficient resources to pay the stipulated penalty, the enforcement official can be reasonably assured that the penalty payment will not burden the firm with undue financial hardship. If ABEL provides a negative or inconclusive result, however, the enforcement official should not assume the firm cannot pay the penalty without first conducting additional analysis.

There are a number of reasons why the analyst should take a second look after receiving a negative ABEL result. The first reason was mentioned above--ABEL employs a number of conservative assumptions in its calculations. In addition, ABEL focuses on only one area of ability to pay, cash flow. Firms may have other potential sources of funds that are not captured in the ABEL analysis. For example, the firm's available cash flow may be understated if it has inflated or nonessential business expenses and distributions. These might include, among others:

- Extravagant or unnecessary compensation of officers;
- Extravagant or unnecessary travel and entertainment expenses;
- Contributions to charitable and other organizations; and
- Cash dividends paid out to shareholders.

Furthermore, the firm might own assets that are not essential to its business operations that could be liquidated to fund a penalty, or it may have loaned funds to its owners or officers which could be called in as a source of additional funds. The firm may have additional debt capacity, allowing it to acquire additional loans to fund a payment. Finally, the firm may have close relations with its parent entities, subsidiaries, and other affiliates, all of which could potentially provide a source of funds for penalty payment.

ABEL's Financial Profile section provides a good place to start an investigation of these issues. You can use the summary financial information to identify large or highly variable asset holdings and expenses, or determine whether the company is carrying large amounts of debt. Reference Appendix B of this manual for a detailed explanation of how to analyze this information. Finally, consult with a financial analyst to help you assess these issues. For assistance with the selection of an expert on ability to pay and financial analysis, EPA staff should call Jonathan Libber, the BEN/ABEL coordinator, at 202/564-6102. For other questions related to ability to pay issues, use EPA's Economic Support Helpline at 888/ECONSPT.

The ABEL Model is also designed to assess a firm's ability to pay for a Superfund (i.e., CERCLA) cleanup.¹ Based on the strength of a firm's expected future cash flows, ABEL is designed to answer the questions:

- How much can a Potentially Responsible Party (PRP) afford to contribute to Superfund cleanup costs?
- What is the likelihood that the PRP will be able to afford a specific cleanup cost?²

The difference between traditional ABEL and Superfund ABEL involves the tax treatment of the firm's historic cash flows. ABEL, as traditionally applied, analyzes the impact of environmental penalties and pollution control expenditures. Thus, traditional ABEL calculates *after-tax* cash flows and calculates a firm's ability to pay penalties or finance non tax-deductible pollution control expenditures from the estimated cash flows after all corporate income taxes are paid. In Superfund cases, ABEL evaluates a firm's ability to pay based on *before-tax* cash flows, assuming that Superfund contributions are fully tax-deductible in the year the contributions are made. Under certain situations Superfund contributions may not be fully tax-deductible, hence, Superfund ABEL may not be the appropriate tool. These situations are discussed in Section E of this chapter.

¹ For a detailed discussion on Superfund ability to pay policy, consult *General Policy on Superfund Ability to Pay Determinations*, released by EPA's Office of Site Remediation Enforcement, September 30, 1997. Superfund ABEL is designed to be consistent with this guidance.

² ABEL will calculate a company's total capability based on recent historical financial information. It does not automatically account for a firm's total Superfund liabilities (existing or contingent) which may exist beyond the site under consideration. If you are involved with a firm that may have additional Superfund liabilities, you should investigate whether these potential obligations might affect the financial resources available to the firm.

The results generated for a Superfund ABEL analysis should be interpreted in the same manner as a traditional ABEL analysis. The results still present a conservative measure of a firm's ability to pay.

A. ABEL ANALYSIS FOR SUPERFUND VIOLATIONS

If you wish to assess a firm's ability to pay for a Superfund cleanup and it is a new case, click "New" on the "Main" Screen (See Exhibit 3-2). This selection will trigger the "Case Description Details" screen, in which you should record the basic case information. In the lower portion of the screen, ABEL requires you to enter the statute. You should click the downward-pointing arrow and select "Superfund," as shown in Exhibit 5-1. When you have entered all the information on the "Case Description Details" screen, click the continue button. This will bring you back to the "Main" screen, where you may then begin entering data by selecting "Input." After selecting "Input," the "Data Input Screen Selection" screen will appear (See Exhibit 3-5). Enter the firm's tax return information in exactly the same manner as for a traditional ability to pay analysis. For a review of how to enter tax form information, consult Chapter 3.

B. CHANGING THE MODEL'S STANDARD VALUES

Continue through the "Tax Form" screens until you reach the "Model Default Values" screen, as shown in Exhibit 5-2. The following standard values are used in Superfund ABEL analyses, and can be accessed by the user in the "Default Parameters" screen:

1. Reinvestment Rate;
2. Annual Inflation Rate;
3. Discount Rate;
4. Weighted Average Smoothing Constant;
5. Number of Years of Cash Flow Considered Available; and
6. Penalty Payment Schedule.

Note the absence of a default value for the marginal income tax rate for corporations. Because Superfund ABEL calculates a firm's ability to pay on a pre-tax basis, the marginal income tax rate is generally not necessary for Superfund ABEL analyses. The reinvestment rate, inflation rate, weighted average smoothing constant, number of years of future cash flow considered available, and penalty payment schedule are described in detail in Chapter 4. The same default values for these five standard values for traditional ABEL are also used for Superfund ABEL analyses. The standard value for the discount rate, however, is different for Superfund ABEL. It is calculated on a pre-tax basis for Superfund analyses, as opposed to an after-tax basis for traditional ABEL cases.

Exhibit 5-1

"CASE DESCRIPTION DETAILS - SUPERFUND" SCREEN

Case Description Details

Applicant:

Firm Name: Century Chemicals

Address: 61 Mellon Road

City: New Orleans State: LA Zip Code: 70500

No. of Years of Tax Info: 5

Most Recent Year of Tax Info: 1996

Data entry (Thousands, Millions, etc.): Dollars

Type of Entity:

☒ C-Corporation ☐ S-Corporation ☐ Partnership

Case:

Analyst: Jon Green

Statute: Superfund

Run Description: \$151,000 Contribution

Continue Cancel Help

1. Reinvestment Rate

The reinvestment rate provides a proxy for the portion of a firm's future cash flow that is allocated for reinvestment in depreciating assets. Typically, firms reinvest a portion of their earnings to replace machinery and equipment as it wears out. However, the more a firm reinvests, the less cash it will have available for Superfund cleanup costs. The reinvestment rate determines the fraction of the firm's depreciation expense that you assume the firm will reinvest.

For traditional ABEL analyses (i.e., cases involving a violation of any statute except Superfund), the standard reinvestment rate is zero, meaning that the model assumes that the firm must pay for its environmental obligations before making any new investment in depreciable capital items such as machinery and equipment. This standard value is based on the assumption that a firm

required to pay environmental penalties should not be constrained from paying the penalties by the need to recover non-cash depreciation expenses. In other words, a firm can reasonably reduce or slightly delay reinvestment in new plant and equipment to fund a penalty payment. Because ABEL forecasts only five years into the future, the analysis does not assume that the company ceases investment in new capital items forever.³ In addition, a five-year period of reduced investment should not jeopardize the long-run financial health of most firms.

For ABEL cases that involve a Superfund violation, the standard reinvestment rate remains zero. However, under certain circumstances you may wish to adjust this figure. As discussed in Chapter 4, if you are examining the ability to pay of a manufacturer in an industry with rapidly changing technology, you may wish to assume that the manufacturer must reinvest in new plant and equipment to remain competitive. In this situation, you may wish to change the reinvestment rate to a figure greater than zero. In addition, if you specified on the "Model Default Values" screen that you wish to consider more than 5 years of future cash flow as available for contribution, you may wish to set the reinvestment rate to some figure greater than zero. (See related discussion in part 3 of this section). A value of 1.0 allows the firm to recapture 100 percent of its average depreciation expenses, providing greater cash flows to potentially reinvest in the business. A figure between zero and 1.0 allows the firm to recapture only a portion of its depreciation expenses.

2. Discount Rate

ABEL uses the discount rate to express the firm's expected future cash flows in present value terms. Because Superfund ABEL calculates a firm's ability to pay a contribution on a pre-tax basis, Superfund ABEL uses a standard *pre-tax* discount rate of 12.0 in 1997. This value represents an estimate of the weighted-average-cost-of-capital (WACC) over the past ten years ending in 1997, for an average firm. The formula used to calculate the WACC for each year is:

$$WACC = [CBA * W_D] + [[TB + R] * W_E]$$

where:

- CBA = Ten-year average return on corporate bond
- W_D = Fraction of total financing made up of debt
- TB = Ten-year average return on Treasury bonds
- R = Equity risk premia
- W_E = Fraction of total financing made up of equity

³ Note that even though the model assumes a zero reinvestment rate, EPA is not dictating an investment policy to the respondent. For purposes of predicting future cash flow, this assumption merely does not include the non-cash expense of depreciation associated with new capital investment as an expense the company has to meet in the future.

Exhibit 5-3 displays the key aspects of the WACC calculation. This standard value will be modified annually. You should not change this variable unless you consult with a financial analyst. ABEL uses the WACC because the model discounts the firm's overall cash flows, rather than those associated with a particular project. The WACC is appropriate since it is the standard discount rate used to evaluate a firm's overall cash flow.

3. Number of Years of Cash Flow Considered Available

As discussed in Chapter 4, the user may specify on the "Model Default Values" screen the number of years of future cash flow considered available for contribution. Like traditional ABEL runs, the default value for Superfund ABEL cases is 5 years. The September 30, 1997, Superfund ability-to-pay policy states that the Agency should normally require a violator to direct five years of future income toward payment of the proposed Superfund contribution amount. The model first calculates the firm's annual weighted average cash flow based on past financial information. It then projects this annual cash flow amount into the future for the number of years of cash flow considered available. The model then calculates the present value of this stream of future cash flow using the discount rate which is also specified on the "Model Default Values" screen. Please consult Appendix A for a detailed description of this calculation.

In some cases, you may wish to change the number of years of future cash flow considered available for contribution. You may choose to alter the default value if specific circumstances surrounding a case warrant a change to greater than or less than the default value of 5 years. The September 30, 1997, Superfund ATP policy allows the number of years of future income to be changed when circumstances warrant. For example, the policy states that increasing the number of years of future income may be considered in certain instances, including when revenue and expense projections are very erratic or when the firm is going through a major capital restructuring that will result in a temporary deferral of profits. Increasing the number of years of cash flow considered available increases the firm's ability to pay a penalty or contribution because the model calculates the lump sum of more than 5 years of future cash flows. Alternatively, you may wish to decrease the number of years of future cash flow considered available. Decreasing the number of years of cash flow considered available decreases the firm's ability to pay a penalty or contribution because the model calculates the lump sum of less than 5 years of future cash flows.

4. Penalty Payment Schedule

As discussed in Chapter 4, ABEL will calculate penalty payment schedules for circumstances in which you decide that the violator should pay the penalty or contribution in annual installments over several years. Like traditional ABEL analyses, the standard default value for Superfund cases

is that the firm will pay its allocated contribution in one lump-sum payment, or 1 year.⁴ You may also choose a penalty payment schedule of 2 to 5 years. Note that allowing the firm to pay its penalty in 2 years (i.e., entering "2" as the penalty payment schedule) actually means that the firm makes one payment on the date the case settles and one payment one year from that date. Spreading the penalty over several years does not affect any of the ABEL Summary Analysis values. *The probability that a firm can afford to pay the environmental expenditures and/or civil penalty remains exactly the same.*⁵

If you choose to spread the penalty over more than one year, ABEL will provide a statement in the conclusion indicating how much the violator can afford to pay in annual payments over the specified number of years. It will also provide the lump sum penalty information. In traditional ABEL cases, ABEL computes a firm's annual payment amount using the after-tax discount rate entered on the "Model Default Values" screen (i.e., 10.6 percent). For cases that involve CERCLA violations, ABEL calculates a firm's annual payment using the Superfund interest rate rather than the pre-tax discount rate entered on the "Model Default Values" screen. The standard Superfund interest rate for 1998 is 5.61 percent.⁶ This value is updated within the model annually. For more information on this calculation, please see Appendix A, Section D, Ability to Pay Calculations, Step 8.

For more information about changes to ABEL's standard default values, please consult Chapter 4, Section D.

⁴ The September 30, 1997 *General Policy on Superfund Ability to Pay Determinations* states that Superfund costs should generally be payable upon settlement. However, under appropriate circumstances, the settlement may provide for installment payments (but not generally for a period longer than five years).

⁵ The stream of annual penalty payments is calculated so that its present value is the same as the lump-sum penalty payment that was specified in the input section.

⁶ This discount rate is consistent with EPA policy outlined in *General Policy on Superfund Ability to Pay Determinations*, dated 30 September 1997. The 1998 rate was obtained from EPA's Financial Management Division.

Exhibit 5-2

"MODEL DEFAULT VALUES - SUPERFUND" SCREEN

The screenshot shows a Windows-style dialog box titled "Model Parameters". It contains several input fields and a checkbox, each with a label to its left. The values entered in the fields are: 0 for Reinvestment Rate, 3.1 for Annual Inflation Rate (%), 12 for Discount Rate (%), 0.3 for Weighted Average Smoothing Constant, and 5 for Number of Years of Future Cash Flow to consider in Ability to Pay Assessment. The Penalty Payment Schedule checkbox is unchecked. At the bottom, there are three buttons: "Continue", "Cancel", and "Help". A note is present at the bottom of the main content area.

Parameter	Value
Reinvestment Rate	0
Annual Inflation Rate (%)	3.1
Discount Rate (%)	12
Weighted Average Smoothing Constant	0.3
Number of Years of Future Cash Flow to consider in Ability to Pay Assessment	5
Penalty Payment Schedule (2, 3, 4, or 5 years)	<input type="checkbox"/>

Note: You do not need to enter a value for the Penalty Payment Schedule if you intend to have the firm pay the penalty in one lump sum.

Continue Cancel Help

Exhibit 5-3

WEIGHTED AVERAGE COST OF CAPITAL CALCULATIONS

YEAR	COST OF DEBT¹	TAX RATE² (%)	FRACTION OF DEBT³	TEN YEAR T BOND⁴	RISK PREMIUM⁵	EQUITY COST⁶	FRACTION OF EQUITY³	WACC
1988	10.18	38.4	0.52	8.85	7.5	16.35	0.48	13.17
1989	9.66	38.4	0.49	8.49	7.5	15.99	0.51	12.89
1990	9.77	38.5	0.50	8.55	7.5	16.05	0.50	12.91
1991	9.23	38.5	0.49	7.86	7.5	15.36	0.51	12.37
1992	8.55	38.6	0.47	7.01	7.5	14.51	0.53	11.71
1993	7.54	39.4	0.47	5.87	7.5	13.37	0.53	10.62
1994	8.26	39.4	0.44	7.09	7.5	14.59	0.56	11.77
1995	7.83	39.4	0.42	6.57	7.5	14.07	0.58	11.45
1996	7.66	39.4	0.37	6.44	7.5	13.94	0.63	11.62
1997	7.54	39.4	0.37	6.35	7.5	13.85	0.63	11.52
10 YEAR AVERAGE	8.62			7.31		14.81		12.0

Notes:

¹ This is the average interest rate paid on corporate bonds. Table 1.35, Federal Reserve Bulletin.

² For further explanation of how the average total corporate marginal tax rate is calculated, see the BEN User's Manual.

³ These weights represent the fraction of financing that is made up of debt or equity. The weights are constructed using data from Standard and Poor's Stock Analyst's Handbook. The equity indexes are adjusted to reflect their market value.

⁴ Treasury bond data from Table 1.35, Federal Reserve Bulletin.

⁵ This is the arithmetic mean of the long-term equity risk premium for 1926 through the most recent year available calculated by Ibbotson Associates.

⁶ For further explanation of the calculation of equity cost of capital, see the BEN User's Manual.

C. CONTRIBUTION AND COMPLIANCE EXPENDITURES

When you have finished entering information on the "Model Default Values" screen, press "Continue" to move ahead to the "Contribution and Compliance Expenditures" screen, as shown in Exhibit 5-4. This screen prompts the user to enter the proposed contribution and compliance expenditures for the firm.

1. Superfund Cleanup Cost Payment Date

ABEL prompts you to enter the year in which the firm will be responsible for the proposed Superfund cleanup cost payment. You must enter all four digits for the appropriate year (e.g., 1997 rather than '97). If you have a case in which the violator will pay the Superfund contribution in annual installments (i.e., penalty payment schedule is greater than 1 year), you should enter the year in which the firm will make its *first payment* as the cleanup cost payment date.

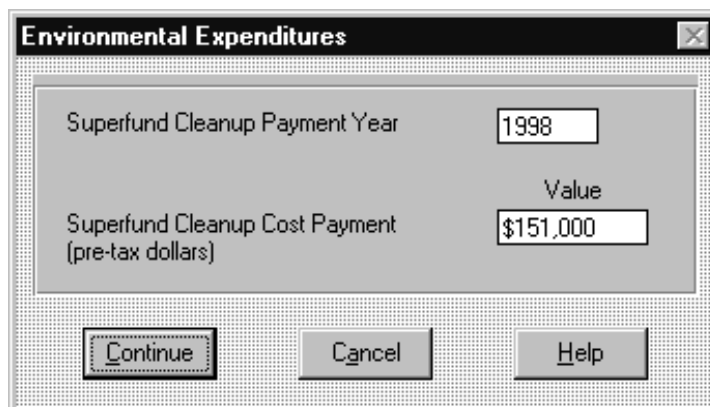
2. Superfund Cleanup Cost Payment

On the next line, ABEL prompts you to enter the Superfund cleanup cost payment. If you wish to assess the maximum contribution the firm can afford to pay, enter a zero and press "Continue." If you wish to evaluate the probability that a firm can pay a specific contribution, enter the amount on the line. This amount should include all Superfund site costs the firm will incur, or has incurred, after the end of the last year in which you have entered tax return data. Do not, for example, enter clean-up costs incurred in 1994 if you have entered tax data for 1994.⁷ Also enter the year-dollars in which the cost payment is expressed. For example, in the Century Chemicals case, EPA seeks a \$151,000 contribution from the firm, as shown in Exhibit 5-4. When you have finished entering all of the information on the "Penalty and Compliance Expenditures" screen, click continue and the model will automatically return you to the "Summary Screen Selection" screen. If you wish to double-check the data you have entered, select the appropriate screen and press "View/Edit." If you would like to conduct an ABEL analysis, click "Exit" and the model will return you to the "Main" screen.

⁷ These cleanup costs will presumably be included and accounted for in the business expenses cited in that year's tax return.

Exhibit 5-4

"ENVIRONMENTAL EXPENDITURES - SUPERFUND" SCREEN



Field	Value
Superfund Cleanup Payment Year	1998
Superfund Cleanup Cost Payment (pre-tax dollars)	\$151,000

Buttons: Continue, Cancel, Help

D. INTERPRETING SUPERFUND ABEL RESULTS

You may now run an ABEL analysis by selecting "Run" on the "Main" Screen. The output produced by ABEL for a Superfund case can be read and interpreted in the same manner as output for a traditional ABEL analysis. For detailed information on how to interpret ABEL results, please consult Chapter 4.

While the results are similar for a traditional ABEL run and a Superfund ABEL run, the presentation of Superfund ABEL results differs slightly. These results are presented in Exhibit 5-7. ABEL produces a table showing the projected pre-tax cash flow the firm will likely generate based on historical information and then subtracts the proposed contribution from this amount. The projection assumes that five years of future cash flow is available for contribution to EPA.

Like traditional ABEL, Superfund ABEL produces a probability distribution of likely future cash flows. These probabilities reflect the likelihood that the firm will equal or exceed the specified level of cash flow. In Column 2 of the table, the firm's projected pre-tax cash flows are listed. Column 3 shows the proposed Superfund contribution. (The column will show a series of "zeros" if the user did not specify a contribution amount.) Column 4 reflects the cash flows listed in Column 2 less the proposed Superfund cleanup costs for the firm in Column 3. This distribution is shown graphically in the related chart.

The ability to pay conclusion can be interpreted exactly as that for a traditional ABEL run. The model produces a conclusion estimating the probability that the firm's future cash flows will be sufficient to meet a particular contribution. If the user stipulated that the contribution be paid over a period of years in the input phase, the results will produce a related series of annual payments. Like traditional ABEL, Superfund ABEL will also conduct a historical comparison of cash flow to determine whether the user should change the smoothing constant employed in the analysis.

E. ALTERNATIVE TAX TREATMENT FOR SUPERFUND CONTRIBUTIONS

The tax treatment of Superfund contributions is complex and somewhat uncertain. We address the relevant issues below, first presenting background information on Internal Revenue Service treatment of this issue, then discussing ways the user can manipulate the ABEL model to consider alternative tax treatment.

1. Background on Tax Treatment of Superfund Contributions

Rulings by the Internal Revenue Service (IRS) to date have not fully addressed the federal income tax treatment of Superfund (and other environmental) cleanup costs. When this issue has been addressed by the IRS, parties have been allowed to deduct remediation expenditures as ordinary and necessary business expenses in some instances while they have been required to capitalize and depreciate them over time in other circumstances.

In its only revenue ruling directly dealing with this issue, the IRS addresses the situation of the owner of a manufacturing plant who bought the property in a clean condition, contaminated its soil and groundwater with hazardous waste, and then restored it to its original physical condition. The revenue ruling allows the property owner to deduct soil remediation costs and ongoing groundwater treatment expenditures, but requires him to capitalize and deduct over time the cost of constructing a groundwater treatment facility.⁸ The revenue ruling assumes that the owner will either continue manufacturing operations at the site or will discontinue them and hold the land in an idle state.

In a private letter ruling to the owner of a Superfund site (which can not be used or cited as precedent by other parties), the IRS allowed legal and consulting fees related to issuance of a consent order, listing on the National Priority List (NPL) of a site contaminated by a predecessor company, and development of a remedial investigation/feasibility study (RI/FS) to be deducted as ordinary and necessary business expenses.⁹ The IRS found that these costs did not create or enhance an asset and that they did not produce a long-term benefit for the property owner.

Users should note that these IRS rulings do not address all the possible scenarios for current owner/operators of Superfund sites, particularly the situation in which a site was contaminated by the activities of a previous owner. They also do not address the situation in which the remediation increases the value of the property or in which the property will be put to a new use. Furthermore, IRS rulings do not address at all the tax treatment of expenditures by other types of parties at Superfund sites (i.e., former owner/operators, generators and transporters). However, it is likely that in the case of parties who are not current owner/operators of Superfund sites, Superfund cleanup expenditures will be deductible in the year expended or incurred if the expenditures are related to carrying on a trade or business or can be characterized as an investment expense. A deduction may

⁸ Rev. Rul. 94-38, 1994-1 C.B. 35.

⁹ Priv. Ltr. Rul. 96-27-002.

not be allowable, however, if the party is an individual who cannot make either type of demonstration.

Because this is an area of significant uncertainty and the facts of each case are important for the tax treatment of environmental cleanup expenditures, the IRS has issued Revenue Procedure 98-17, a revenue procedure that provides (for a two-year trial period) special procedures by which a party can obtain a letter ruling from the IRS on the federal income tax treatment of a particular environmental cleanup project.¹⁰ The procedures apply to any costs associated with the assessment, mitigation or remediation of environmental hazards, whether such hazards are on the property of the party requesting the ruling or on the property of another party. Examples of environmental cleanup projects listed in the revenue procedure include the study, remediation, and monitoring of soil and groundwater at a former manufacturing site.

Because it is likely that most parties at Superfund sites are not current owner/operators and because the Superfund expenditures of most of these parties are expected to be deductible as ordinary and necessary business expenses for federal income tax purposes, the Superfund ABEL model assumes that Superfund expenditures are deductible in the year spent or incurred. However, users of the model should consider altering the parameters of the ABEL run if the factors of a particular case and/or the status of a party indicate that there is a good reason to believe that the expenditures will be treated otherwise (i.e., they will have to be capitalized and depreciated over time or they will not be deductible at all). For current owner/operators of Superfund sites, particular situations in which there may be a different tax treatment include: (1) The site was contaminated while owned by a previous owner; (2) The expenditure is for a facility that will have value over time, such as a groundwater treatment facility; (3) The site will be put to a new use after the cleanup; and/or (4) The value of the site will increase after the cleanup, compared to its value prior to contamination.

For other types of parties, deductibility may be a problem if the party is an individual who does not have a business or investment relationship to the expenditure. For example, suppose an individual who is a PRP at a Superfund site owned and operated a dry cleaning business for 30 years, but is currently retired after closing the business. This individual may not be able to deduct his or her Superfund contribution as an ordinary and necessary business expense since the business is no longer operating. Similarly, he or she may also have difficulty claiming this expense as investment-related. Instead, the individual may have to pay the contribution using his or her after-tax cash flow. In circumstances such as these, the Individual Ability to Pay (Indipay) model should be used since the entity under examination is an individual, not a corporation, and the individual's after tax cash flow should be examined.

In deciding whether the parameters of the ABEL run should be altered, it would be helpful for the user of the model to know whether a party has received a private letter ruling (or other communication) from the IRS concerning the tax treatment of its Superfund-related expenditures.

¹⁰ Rev. Proc. 98-17, 1998-5 I.R.B. 21.

If you need assistance in determining how a Superfund expenditure should be treated in the ABEL model, you may wish to consult a financial analyst in your region or office. You may also contact Bob Kenney of the EPA Office of Site Remediation Enforcement, Policy and Program Evaluation Division, at 202/564-5127. If you need assistance adjusting the model's assumption concerning tax deductibility or have other questions about the mechanics of the ABEL model, please contact EPA's Economic Support Helpline at 888/ECON-SPT.

2. Adjusting ABEL for Alternative Tax Treatment

Based on the discussion above, the tax treatment of a particular Superfund contribution will likely fall into one of three general categories: (1) the entire contribution is fully tax-deductible in the year in which the contribution is made; (2) the entire contribution is tax-deductible, but the tax deduction must be spread out over a period of years (i.e., the contribution must be capitalized and depreciated over the useful life of the asset purchased with the contribution); and (3) no portion of the contribution is tax-deductible. Superfund ABEL is designed to handle the first category of Superfund cases. ABEL is capable of estimating ability to pay for the other two categories, but some manipulation of the model inputs is required. The steps required to assess these alternative cases are described below.

Note that instances may arise where portions of a Superfund contribution fall under two or more of the three categories listed above. For example, one part of the contribution may be fully deductible while another may be partially deductible. If you are involved in a case with this level of complexity, you may wish to consult a financial analyst. In addition, the adjustments discussed below become more complicated if the contribution is going to be paid over time. In this instance, you may wish to consult a financial analyst to help you interpret the ABEL results.

Depreciable Superfund Contribution

Adjusting an ABEL run to consider a depreciable Superfund contribution is straightforward, but the results generated by the model are more difficult to interpret. The tax treatment of this scenario is similar to a traditional ABEL run that considers the impact of depreciable capital costs. In this instance, a sum of money is expended in one year to purchase a particular asset; however, the cost of this asset can only be deducted for tax purposes over a period of many years. To manipulate the ABEL model to consider depreciable Superfund expenditures, the user should conduct a traditional ABEL run (as described in Chapter 3 and 4) with the Superfund contribution entered as a "Depreciable Capital Cost." These steps are detailed in Exhibit 5-5 below.¹¹

¹¹ For depreciable capital costs, ABEL assumes a seven year depreciation schedule. If the depreciation schedule for the Superfund contribution you are assessing is significantly higher or lower than this figure, contact a financial analyst. You may still conduct an ABEL model run to generate a rough estimate of ability to pay, but the result will not be as accurate. A financial analyst would be able to assist you in interpreting these results. In addition, you should seek help from a financial analyst for cases in which a Superfund contribution is depreciable *and* you decide to

Exhibit 5-5		
ASSESSING DEPRECIABLE SUPERFUND CONTRIBUTIONS		
Step	Enter the following screen...	Make the following adjustment...
1	Case Description Details	Designate a statute other than "Superfund" (e.g., RCRA).
		Enter a run description that notes the Superfund adjustment.
		Enter all other information on this screen just as a regular ABEL run.
2	Environmental Expenditures	Enter Superfund contribution amount as "Depreciable Capital Cost."
3	Tax Data Input Screens	Enter all other tax return inputs just as a regular ABEL run.
4	Ability to Pay Conclusion	<p>Interpretation of results more involved. Review the first ("Probability of Cash Flow") and second ("Total Cash Flow Generated by Firm") columns of the "Summary" table and consider the following:</p> <ol style="list-style-type: none"> 1. The figure appearing in the third row of the second column represents the total Superfund contribution the firm can afford with 70 percent probability. 2. If the contribution you entered is less than this amount, conclude that the firm can afford the contribution with greater than 70 percent probability. 3. If the contribution you entered is greater than this amount, do not conclude that the firm cannot afford the contribution without first conducting additional analysis. Seek the assistance of a financial analyst, if necessary, or call the Economics Support Helpline at 888/ ECON-SPT for assistance.

Non-Tax-deductible Superfund Contribution

Adjusting an ABEL run to consider a non-tax-deductible Superfund contribution is straightforward, and the results are easy to interpret. The tax treatment of this scenario is identical to a traditional ABEL run — penalty payments resulting from noncompliance are generally not tax-deductible. Accordingly, this manipulation involves conducting a traditional ABEL run (as described in Chapter 3 and 4) with the Superfund contribution entered as the penalty amount. These steps are detailed in Exhibit 5-6 below.

consider more than five years of future cash flow as available for contribution to EPA.

Exhibit 5-6		
ASSESSING NON-Tax-deductible SUPERFUND CONTRIBUTIONS		
Step	Enter the following screen...	Make the following adjustment...
1	Case Description Details	Designate a statute other than "Superfund" (e.g., RCRA).
		Enter a run description that notes the Superfund adjustment.
		Enter all other information on this screen just as a regular ABEL run.
2	Environmental Expenditures	Enter Superfund contribution amount as "Lump-Sum Settlement Penalty."
3	Tax Data Input Screens	Enter all other tax return inputs just as a regular ABEL run.
4	Ability to Pay Conclusion	Interpret results just as the results of a regular ABEL run; the penalty amount cited in the model's conclusion is equivalent to the non-tax-deductible Superfund contribution the firm can afford to pay.

Financial Profile

Exhibit 5-7

In Dollars

Century Chemicals

C Corporation, Tax Form 1120

Run Description: \$151,000 Contribution

	1996	1995	1994	1993	1992
Balance Sheet					
Assets					
Cash	\$ 12,836	\$ (97,343)	\$ (162,432)	\$ (106,071)	\$ (36,345)
Accounts Receivable	\$ 272,087	\$ 337,715	\$ 273,784	\$ 343,527	\$ 245,131
Inventories	\$ 384,539	\$ 397,486	\$ 448,016	\$ 476,346	\$ 511,708
U.S. Government Obligations	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Tax-Exempt Securities	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Other Current Assets	\$ 34,153	\$ 22,743	\$ 23,905	\$ 66,065	\$ 188,663
All Other Assets*	\$ 527,701	\$ 787,577	\$ 827,297	\$ 907,479	\$ 872,527
Total Assets	\$ 1,231,316	\$ 1,448,178	\$ 1,410,570	\$ 1,687,346	\$ 1,781,684
Liabilities					
Accounts Payable	\$ 1,085,691	\$ 1,165,439	\$ 1,424,616	\$ 1,421,732	\$ 1,102,786
Mortgages, Bonds Payable in < 1 Year	\$ 998,059	\$ 979,477	\$ 961,349	\$ 983,270	\$ 1,026,838
Other Current Liabilities	\$ 801,898	\$ 725,843	\$ 676,015	\$ 631,878	\$ 553,278
Loans from Stockholders	\$ 16,500	\$ 16,500	\$ 16,500	\$ 16,500	\$ 16,500
Mortgages, Bonds Payable in > 1 Year	\$ 0	\$ 0	\$ 0	\$ 0	\$ 154,446
Other Liabilities	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Total Liabilities	\$ 2,902,148	\$ 2,887,259	\$ 3,078,480	\$ 3,053,380	\$ 2,853,848
Stockholders' Equity	\$ (1,670,832)	\$ (1,439,081)	\$ (1,667,910)	\$ (1,366,034)	\$ (1,072,164)
Total Liabilities and Stockholders' Equity	\$ 1,231,316	\$ 1,448,178	\$ 1,410,570	\$ 1,687,346	\$ 1,781,684

Income Statement					
Gross Sales	\$ 4,246,423	\$ 4,329,631	\$ 2,999,842	\$ 3,037,992	\$ 2,706,567
Cost of Goods Sold	\$ 2,938,509	\$ 3,318,139	\$ 2,166,916	\$ 2,243,600	\$ 2,251,687
Operating Profit	\$ 1,307,914	\$ 1,011,492	\$ 832,926	\$ 794,392	\$ 454,880
Other Expenses and Income					
Interest Expense	\$ 237,658	\$ 231,252	\$ 166,642	\$ 139,706	\$ 183,730
Depreciation	\$ 24,667	\$ 27,410	\$ 19,178	\$ 21,848	\$ 11,670
Depletion and Amortization	\$ 5,964	\$ 5,640	\$ 6,039	\$ 7,127	\$ 5,871
Other Expenses (Income)**	\$ 941,290	\$ 677,612	\$ 445,684	\$ 438,551	\$ 75,079
Total Expenses (Income)	\$ 1,209,579	\$ 941,914	\$ 637,543	\$ 607,232	\$ 276,350
Taxable Income Before NOL	\$ 98,335	\$ 69,578	\$ 195,383	\$ 187,160	\$ 178,530

Summary of Estimated Cash Flow					
Taxable Income Before NOL	\$ 98,335	\$ 69,578	\$ 195,383	\$ 187,160	\$ 178,530
Tax	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Credit for Regulated Investment	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Credit for Federal Fuels	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Depreciation	\$ 24,667	\$ 27,410	\$ 19,178	\$ 21,848	\$ 183,730
Depletion and Amortization	\$ 5,964	\$ 5,640	\$ 6,039	\$ 7,127	\$ 5,871
Income Not Included on Return	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Available After-Tax Cash Flow	\$ 128,966	\$ 102,628	\$ 220,600	\$ 216,135	\$ 196,071
Available Pre-Tax Cash Flow	\$ 128,966	\$ 102,628	\$ 220,600	\$ 216,135	\$ 196,071
Adjusted for Inflation	\$ 137,086	\$ 112,471	\$ 249,253	\$ 251,778	\$ 235,486

* May include loans to stockholders, mortgage and real estate loans, other investments, buildings and other depreciable assets, depletable assets, land, intangible assets, and other long-term assets; see Schedule L of firm's federal income tax return.

** Includes additional income categories listed on page 1, Income Section, of firms's federal income tax return and additional expense categories listed on page 1, Deductions Section, of firms's federal income tax return.

Financial Profile

In Dollars

Century Chemicals

C Corporation, Tax Form 1120

Run Description: \$151,000 Contribution

	1996	1995	1994	1993	1992
Historical Financial Ratios					
Debt to Equity	-1.75	-2.02	-1.86	-2.25	-2.67
Current Ratio	0.24	0.23	0.19	0.26	0.34
Times Interest Earned	1.41	1.30	2.17	2.34	1.97
Beaver's Ratio	0.04	0.04	0.07	0.07	0.07
Altman Z'- Score	1.39	1.29	0.23	0.40	0.61

Debt to Equity	-1.75	-2.02	-1.86	-2.25	-2.67
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The debt to equity ratio (D/E) is defined as the firm's total liabilities divided by its stockholders' equity. This ratio measures the degree to which debt constitutes the company's financing.

A D/E less than zero indicates that a firm has negative stockholders' equity, an extremely poor financial situation. This firm's D/E fell into this category in 1996, 1995, 1994, 1993, 1992.

Current Ratio	0.24	0.23	0.19	0.26	0.34
----------------------	-------------	-------------	-------------	-------------	-------------

The current ratio (CR) is defined as the firm's current assets divided by its current liabilities. The ratio assesses whether the firm will be able to cover its short-term debts using cash and other current assets that can be easily liquidated.

A CR less than 1.0 indicates that the firm has serious liquidity problems. This firm's CR was poor in 1996, 1995, 1994, 1993, 1992.

Times Interest Earned	1.41	1.30	2.17	2.34	1.97
------------------------------	-------------	-------------	-------------	-------------	-------------

The times interest earned ratio (TIE) is defined as the firm's earnings before interest and taxes divided by its interest expense payments. This ratio indicates how easily the firm can pay the interest expense on its debt.

A TIE less than 2.0 indicates that the firm may have trouble meeting future interest payments. As the TIE decreases, the likelihood of the firm experiencing problems in meeting those payments increases. This firm's TIE was unfavorable in 1996, 1995, 1992.

A TIE greater than 2.0 generally indicates that the firm is able to meet its interest payments. This firm fell into this category in 1994, 1993.

Beaver's Ratio	0.04	0.04	0.07	0.07	0.07
-----------------------	-------------	-------------	-------------	-------------	-------------

Beaver's ratio (BR) is defined as the firm's after-tax cash flow divided by its total liabilities. The BR provides a useful measure for predicting a firm's long-term solvency and likelihood of staying in business. In particular, the BR indicates whether the firm's internally generated cash flow is sufficient to meet its current and long-term financial obligations.

A BR less than 0.1 generally indicates poor financial health. This firm fell into this category in 1996, 1995, 1994, 1993, 1992.

Altman's Z- Score	1.39	1.29	0.23	0.40	0.61
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Altman's Z-Score (AZS) is calculated as a weighted average of several financial ratios. AZS is a predictor of firm failure. It is most accurate within two years prior to bankruptcy.

An AZS less than 1.23 indicates that the firm could be bankrupt within the next two years if its financial situation does not dramatically improve. This firm's AZS fell into this category in 1994, 1993, 1992.

An AZS between 1.23 and 2.90 is inconclusive. This situation applied to this firm in 1996, 1995.

This firm's most recent year's financial ratios indicate that:

The firm's financial condition is poor with zero or negative stockholders' equity. The firm will likely have difficulty obtaining additional debt financing.

Note that although these ratios provide a rough indication of the firm's financial condition, they can easily be misinterpreted. See ABEL User's Manual for a more detailed discussion of these issues.

Ability to Pay Analysis

Century Chemicals
C Corporation, Tax Form 1120

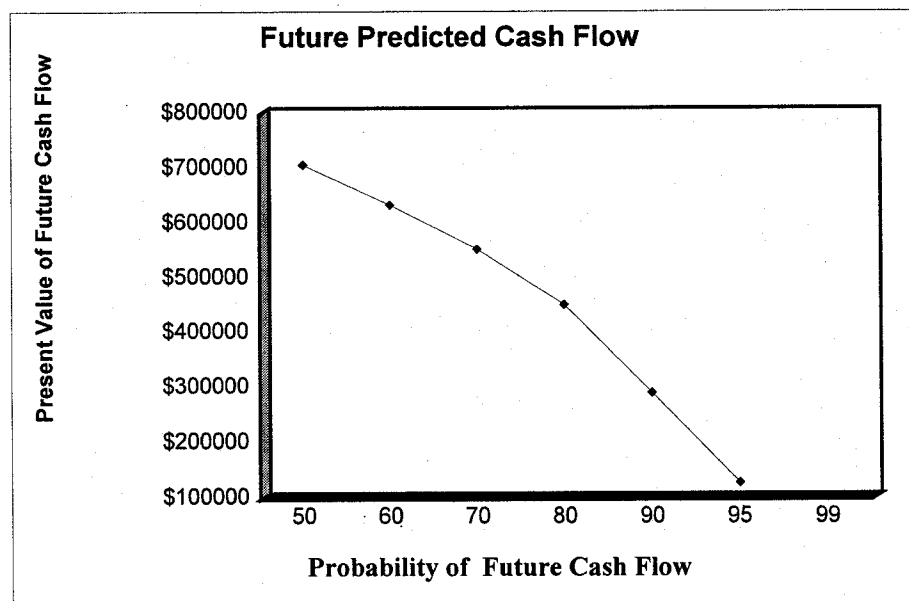
Run Description: \$151,000 Contribution

Contribution Amount: \$151,000 in 1998 dollars

Reinvestment Rate:	0.0
Annual Inflation Rate (%):	3.1
Discount Rate (%):	12.0
Weighted Average Smoothing Constant:	0.3
Number of Years of Future Cash Flow:	5
Contribution Payment Schedule:	1

Summary of Predicted Cash Flow

Probability of Adequate Cash Flow	Total Pre-Tax Cash Flow Generated by Firm	Superfund Cleanup Cost	Cash Flow Net of Superfund Cleanup Cost
50%	\$ 709,723	\$ 151,000	\$ 558,723
60%	\$ 636,116	\$ 151,000	\$ 485,116
70%	\$ 555,176	\$ 151,000	\$ 404,176
80%	\$ 454,137	\$ 151,000	\$ 303,137
90%	\$ 293,343	\$ 151,000	\$ 142,343
95%	\$ 130,648	\$ 151,000	\$ -20,352
99%	\$ 0	\$ 151,000	\$ -151,000



Conclusions

ABEL estimates a 94.4 percent probability that Century Chemicals can generate \$151,000 in pre-tax dollars to cover Superfund cleanup costs.

ABEL estimates a 70 percent probability that Century Chemicals could afford to pay \$555,176 for Superfund cleanup costs.

This estimation of ability to pay is based on funds the firm is expected to generate during the next 5 years.

EPA employs the 70 percent probability level as a common cutoff for determining ability to pay. Note, however, that it is ultimately up to the litigation team to determine an appropriate cutoff.

All figures are expressed in Dollars and 1998 year-dollars.

ABEL generally provides a conservative estimate of ability to pay. Click 'Help' on the 'Reports Generation' screen or consult the ABEL User's Manual for a discussion of ABEL's results and related issues.

To this point, the manual has focused on the inputs and outputs for an ABEL assessment of C corporations (using tax Form 1120). ABEL also allows the user to assess the ability to pay of S corporations, which file Form 1120 S, and partnerships, which file form 1065.¹ Although the results generated by ABEL for S corporations and partnerships can be interpreted just as those for C corporations, the user should be aware of the following differences in a model run for each of these business forms:

- **Input formats and data sources.** The input screens for S corporations and partnerships differ slightly from those for C corporations. In addition, the sources for the data inputs are different, as the format of Forms 1120 S and 1065 differ from that of Form 1120.
- **Treatment of taxes.** Income earned by C corporations is taxed at the corporate level at the relevant corporate tax rates, while S corporations and partnerships pass income and expenses through to the owners, who then pay taxes on the net income from all of their business activities. ABEL automatically adjusts the analysis to consider these tax differences.

¹ EPA recognizes that Limited Liability Corporations (LLC) and Limited Liability Partnerships (LLP) are becoming increasingly more common. For analysis purposes, you should analyze the ability to pay of a LLC by selecting "C corporation" (assuming the firm submits form 1120) on the "Case Description Details" screen. You should analyze the ability to pay of a LLP by selecting "Partnership" on the "Case Description Details" screen. If the ABEL results indicate that the LLP/LLC can pay the proposed penalty or contribution at a probability level greater than or equal to 70 percent, you should conclude the entity can pay the proposed penalty. If the ABEL results are inconclusive, you may wish to obtain the LLP's or LLC's articles of incorporation for a more detailed analysis. In this case, you may also wish to consult a financial analyst. For more information on an LLC/LLP, call EPA's Economic Enforcement Helpline at 888/ECON-SPT or benabel@indecon.com.

- **Owner's liability.** One of the characteristics of corporations (both S and C) is that an owner's liability for corporate debts are limited to the owner's investment in the company. In contrast, owners of a partnership (i.e., "partners") are generally liable for any and all debts of the partnership. A "general partner" can be personally liable, while limited partners' exposure is limited to their investment. Although ABEL accurately assesses the financial resources controlled by a particular partnership, the analyst should, in addition, consider assessing the personal financial capabilities of the individual owners of the partnership to conduct a complete ability to pay analysis.

Example model runs for both an S corporation and partnership are presented and discussed below.

A. S CORPORATIONS

If the firm you are analyzing is an S corporation (tax form 1120 S), designate the S corporation box in the "Type of Entity" category on the "Case Description Details" screen, as shown in Exhibit 6-1. ABEL will again ask for confirmation about whether you designated the appropriate type of firm. After clicking "Yes" to continue, ABEL will return you to the "Main" screen. To begin data entry, press "Input" on this screen. Tax data entry screens for Apple Manufacturing, an S corporation, are illustrated for 1996 in Exhibit 6-2 through 6-4.² Apple Manufacturing's 1996 income tax return is included at the end of this chapter. Only the pages of the return directly referenced by ABEL during the data input sessions are included.

Data entry for S corporations is similar to data entry for C corporations with the exception of a few small differences. The data entry for S corporations is more involved than data entry for C corporations as it requires some off-line calculations prior to entering data. For example, to enter information about the firm's gross receipts or sales less returns and allowances, you are required to sum Line 1c plus Line 3a on Schedule K plus total gross rental income from Line 17 on form 8825. You are also required to calculate interest expense as the sum of Line 3 plus Line 3b on Schedule K plus the sum of all properties from Line 9 on Form 8825. Note that a particular firm may not have values for each of these reference; just tally any relevant values that do appear.

In addition, some data entry items, such as net operating loss (NOL) deductions, are not applicable for S corporations. Non-applicable items are designated as such on the "tax form" screens. ABEL will not allow you to enter any data on lines that are designated "not applicable."

² You should continue to expect slight variation in the tax data screens for all years other than 1996 as the structure of tax forms may differ.

1. Marginal Income Tax Rate

The "Model Default Values" screen is shown in Exhibit 6-5. The standard values for reinvestment rate, annual inflation rate, discount rate, weighted average smoothing constant, number of years of cash flow considered available for payment/contribution, and penalty payment schedule are the same as the standard values for C corporations. For more information on these standard values, please consult Chapter 4. The marginal income tax rate used for corporations is not appropriate for S corporations or partnerships because these firms pass income and expenses through to the owners, who then pay taxes on the net income from all of their business activities. There are two issues related to taxes: (1) the amount of tax the organization has historically paid; and (2) the marginal tax rate to apply to ABEL's projection of future cash flows.

To calculate after-tax cash flows in the Ability to Pay output, a marginal income tax rate must be specified on the "Model Default Values" screen. For S corporations and partnerships, the standard value is equivalent to a weighted average of the *individual* marginal federal income tax rate at the upper end of the income scale and the *individual* marginal state income tax rates. This standard value is an approximation of a typical shareholder's taxes. If you wish to use a more precise value and you know the state in which the shareholder pays taxes, you could determine the appropriate marginal tax rate by using the net taxable income of a typical shareholder in the S corporation.

The standard value for this variable is 43.0 percent. The value is based on the marginal federal tax rate at the highest income level (39.6 percent) and the average of all marginal individual tax rates imposed by states. This variable reflects the fact that state taxes are deductible from federal income taxes. The total individual marginal tax rates are calculated state-by-state in Exhibit 6-6.³

³ The adjustment is made by multiplying the state rates by a factor equal to one minus the marginal federal tax rate, as shown in the following formula:

$$MTR_{TOTAL} = MTR_{FEDERAL} + [MTR_{STATE} * (1 - MTR_{FEDERAL})]$$

where: $MTR_{FEDERAL}$ = the marginal tax rate at the federal level; and

MTR_{STATE} = the marginal tax rate at the state level

Therefore, if you were to calculate the total marginal tax rate based on a marginal state tax rate of 10%, the result would be percent. This calculation is shown below:

$$\begin{aligned} MTR_{TOTAL} &= .396 + [.10 * (1 - .396)] \\ &= .396 + (.10 * .604) \\ &= .396 + .0604 \\ &= .4564 \\ &= 45.6\% \end{aligned}$$

2. ABEL Results for S Corporations

ABEL results for S corporations should be interpreted in exactly the same manner as output for C corporations as the financial profile, financial ratios, and ability to pay calculations do not change. For more information about how to interpret ABEL results, please consult Chapter 4.

Exhibit 6-1

"CASE DESCRIPTION DETAILS - S CORPORATION" SCREEN

The screenshot shows a software window titled "Case Description Details" with a close button (X) in the top right corner. The window is divided into two main sections: "Applicant:" and "Case:". The "Applicant:" section contains fields for "Firm Name:" (Apple Manufacturing), "Address:" (Street: 198 Stafford Road), "City:" (Pittsburgh), "State:" (PA), "Zip Code:" (19100), "No. of Years of Tax Info:" (3), "Most Recent Year of Tax Info:" (1996), "Data entry (Thousands, Millions, etc.):" (Dollars), and "Type of Entity:" with radio buttons for "C-Corporation", "S-Corporation" (selected), and "Partnership". The "Case:" section contains fields for "Analyst:" (Jon Green), "Statute:" (Clean Air Act - Stationary Source), and "Run Description:" (\$30,000 Penalty). At the bottom of the window are three buttons: "Continue", "Cancel", and "Help".

Applicant:	
Firm Name:	Apple Manufacturing
Address:	
Street	198 Stafford Road
City	Pittsburgh
State	PA
Zip Code	19100
No. of Years of Tax Info:	3
Most Recent Year of Tax Info:	1996
Data entry (Thousands, Millions, etc.)	Dollars
Type of Entity:	
<input type="radio"/> C-Corporation	<input checked="" type="radio"/> S-Corporation
<input type="radio"/> Partnership	

Case:	
Analyst:	Jon Green
Statute:	Clean Air Act - Stationary Source
Run Description:	\$30,000 Penalty

Continue Cancel Help

Exhibit 6-2

"1120 S TAX FORM FOR 1996" FIRST SCREEN

1120 S Tax Form for 1996	
Gross Receipts or Sales Less Returns and Allowances (Line 1c plus Line 3a on Schedule K plus total gross rental income from Line 17 on Form 8825)	\$4,350,210
Cost of Goods Sold and/or Operations (Line 2)	\$3,460,480
Interest Expense (Line 13 plus Line 3b on Schedule K plus Line 9 on Form 8825, sum all properties)	\$79,221
Depreciation (Line 10b on Schedule L, Column c minus Column a)	\$116,065
Depletion and Amortization (Line 11b on Schedule L, Column c minus Column a; plus Line 13b on Schedule L, Column c minus Column a)	
Taxable income Before NOL and Special Deductions (Line 23 on Schedule K)	\$26,842
NOL Deductions (Not Applicable)	
Special Deductions (Not Applicable)	
Total Tax (Line 22c)	
Credit From Regulated Investment Companies (Not Applicable)	
Credit for Federal Tax on Fuels (Line 23c)	

[Continue](#) [Cancel](#) [Help](#)

Exhibit 6-3

"1120 S TAX FORM" SECOND SCREEN

1120 S Tax Form for 1996 Continued...	
Cash (Line 1 on Schedule L, Column d)	\$16,194
Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	\$544,126
Inventories (Line 3 on Schedule L, Column d)	\$418,543
U.S. Government Obligations (Line 4 on Schedule L, Column d)	
Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
Other Current Assets (Line 6 on Schedule L, Column d)	\$51,447

Continue Cancel Help

Exhibit 6-4

"1120 S TAX FORM" THIRD SCREEN

Item Description	Amount
Accounts Payable (Line 16 on Schedule L, Column d)	\$237,696
Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L, Column d)	\$329,657
Other Current Liabilities (Line 18 on Schedule L, Column d)	\$171,199
Loans from Stockholders (Line 19 on Schedule L, Column d)	
Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L, Column d)	\$233,585
Other Liabilities (Line 21 on Schedule L, Column d)	
Appropriated Retained Earnings (Not Applicable)	
Unappropriated Retained Earnings (Line 24 on Schedule L, Column d)	\$849,265
Total Liabilities and Stockholders' Equity (Line 26 on Schedule L, Column d)	\$1,634,402
Income Recorded on Books not Included in Return (Line 5 on Schedule M-1)	

Continue **Cancel** **Help**

Exhibit 6-5

"MODEL DEFAULT VALUES" SCREEN

The screenshot shows a Windows-style dialog box titled "Model Parameters". It contains several input fields with the following values: Reinvestment Rate (0), Annual Inflation Rate (%) (3.1), Discount Rate (%) (10.5), Weighted Average Smoothing Constant (0.3), Marginal Income Tax Rate (%) (43), and Number of Years of Future Cash Flow to consider in Ability to Pay Assessment (5). There is an unchecked checkbox for "Penalty Payment Schedule (2, 3, 4, or 5 years)". A note at the bottom states: "Note: You do not need to enter a value for the Penalty Payment Schedule if you intend to have the firm pay the penalty in one lump sum." At the bottom of the dialog are three buttons: "Continue", "Cancel", and "Help".

Parameter	Value
Reinvestment Rate	0
Annual Inflation Rate (%)	3.1
Discount Rate (%)	10.5
Weighted Average Smoothing Constant	0.3
Marginal Income Tax Rate (%)	43
Number of Years of Future Cash Flow to consider in Ability to Pay Assessment	5
Penalty Payment Schedule (2, 3, 4, or 5 years)	<input type="checkbox"/>

Note: You do not need to enter a value for the Penalty Payment Schedule if you intend to have the firm pay the penalty in one lump sum.

Continue Cancel Help

Exhibit 6-6 TOTAL INDIVIDUAL MARGINAL TAX RATES BY STATE (Percent)	
State	Marginal Tax Rates
Alabama	42.6
Alaska	39.6
Arizona	42.7
Arkansas	43.8
California	45.2
Colorado	42.6
Connecticut	42.3
Delaware	43.8
Florida	39.6
Georgia	43.2
Hawaii	45.6
Idaho	44.6
Illinois	41.4
Indiana	41.7
Iowa	45.0
Kansas	44.3
Kentucky	43.2
Louisiana	43.2
Maine	44.7
Maryland	42.6
Massachusetts	43.2
Michigan	42.3
Minnesota	44.7
Mississippi	42.6
Missouri	43.2
Montana	46.2

Exhibit 6-6 TOTAL INDIVIDUAL MARGINAL TAX RATES BY STATE (Percent)	
State	Marginal Tax Rates
Nebraska	43.6
Nevada	39.6
New Hampshire	39.6
New Jersey	43.4
New Mexico	44.7
New York	43.9
North Carolina	44.3
North Dakota	46.8
Ohio	43.9
Oklahoma	43.8
Oregon	45.0
Pennsylvania	41.3
Rhode Island	46.2
South Carolina	43.8
South Dakota	39.6
Tennessee	39.6
Texas	39.6
Utah	43.8
Vermont	45.6
Virginia	43.1
Washington	39.6
West Virginia	43.5
Wisconsin	43.8
Wyoming	39.6
Standard Value	43.0
Source: Federation of Tax Administrators. Based on a marginal Federal tax rate of 39.6 percent and State marginal individual tax rates for 1997.	

B. PARTNERSHIPS

If the firm you are analyzing is a partnership, designate the Partnership box in the "Type of Entity" category on the "Case Description Details" screen, as shown in Exhibit 6-7. ABEL will again ask for confirmation about whether you designated the appropriate type of firm. ABEL will also warn that the individual partners of the firm may be personally liable for the partnership's environmental liabilities and you should investigate whether the partner's financial resources may be accessed to fund a penalty payment.

An approach often taken by enforcement staff is to conduct a two-stage ability to pay analysis of a partnership. In the first stage, the financial resources of the partnership entity, alone, are evaluated using the ABEL model. If, and only if, the resources of the partnership are inadequate for the penalty or contribution sought by EPA, the second stage of the analysis is performed. In this stage, the resources of the individual partners are evaluated to compute their ability to pay the entire or remaining portion of the penalty or contribution. Partners can be either corporations or individuals. If the partner is a corporation, you should obtain the firm's completed income tax returns (form 1120 or 1120 S) and assess its ability to pay using the ABEL model. If the partner is an individual, you should obtain the individual's completed individual income tax returns (Form 1040) and have the individual complete a Financial Data Request Form. You should then use this information to assess the individual's ability to pay using the Individual Ability to Pay Model (Indipay).⁴

Remember that the shareholders that "own" a corporation contribute either money, property or services to the firm in return for shares. The main difference between a C or S corporation and a partnership is that the shareholders of a corporation are only liable to the extent that they have invested in the company. For example, if a corporation sustains significant losses to such an extent that it cannot repay its creditors, the shareholders personal assets are legally protected. In contrast, in the case of partnerships, the personal assets of the shareholders may be accessed to satisfy unpaid claims or environmental liabilities.

If you selected "Partnership," clicking "Yes" will return you to the "Main" screen. To begin data entry, click "Input" on this screen. Note that entering tax data for partnerships requires off-line calculations similar to the calculations required for S corporation tax data entry. Tax data entry screens for Anderson Associates, a partnership, are illustrated for 1995 in Exhibit 6-8 through 6-10.⁵ Anderson Associates' 1995 income tax return is included at the end of this chapter. Only the pages of the return directly referenced by ABEL during the data input sessions are included.

⁴ To obtain a copy of the Individual Ability to Pay Model or for more information about evaluating an individual's ability to pay, please contact EPA's Economic Enforcement Helpline at 888/ECONSPT or benabel@indecon.com.

⁵ You should continue to expect slight variations in the tax data screens for all years other than 1996 as the structure of tax forms may differ.

The model default values used for partnerships are exactly the same as the default values used for S corporations. For more information on these values, see Exhibit 6-6 and the related discussion on marginal income tax rates in Section A.1, or the section dedicated to model default values in Chapter 4. Interpreting the ABEL model output for partnerships is exactly the same as interpreting output for C and S corporations. For more information on interpreting output, please consult Chapter 4.

Exhibit 6-7

"CASE DESCRIPTION DETAILS - PARTNERSHIP" SCREEN

The screenshot shows a software window titled "Case Description Details" with a close button in the top right corner. The window is divided into two main sections: "Applicant:" and "Case:". The "Applicant:" section contains the following fields: "Firm Name:" with the text "Anderson Associates"; "Address:" with sub-fields for "Street" (869 Sunflower Road), "Building #10", "City" (Seattle), "State" (WA), and "Zip Code" (66953); "No. of Years of Tax Info:" (4); "Most Recent Year of Tax Info:" (1995); "Data entry (Thousands, Millions, etc.):" (Thousands); and "Type of Entity:" with radio buttons for "C-Corporation", "S-Corporation", and "Partnership" (which is selected). The "Case:" section contains: "Analyst:" (Jon Green); "Statute:" (UST (Underground Storage Tank)); and "Run Description:" (First Run). At the bottom of the window are three buttons: "Continue", "Cancel", and "Help".

Case Description Details

Applicant:

Firm Name: Anderson Associates

Address:

Street 869 Sunflower Road

Building #10

City Seattle State WA Zip Code 66953

No. of Years of Tax Info: 4

Most Recent Year of Tax Info: 1995

Data entry (Thousands, Millions, etc.) Thousands

Type of Entity:

☐ C-Corporation ☐ S-Corporation ☒ Partnership

Case:

Analyst: Jon Green

Statute: UST (Underground Storage Tank)

Run Description: First Run

Continue Cancel Help

The screenshot shows a warning message box titled "Case Description Details" with a close button in the top right corner. On the left is a red circle with a white "X" icon. To the right of the icon is the following text: "Note that the partners (or owners) may be held individually liable for this partnership's environmental liabilities. The analyst should investigate whether the financial resources of the partners may be accessed to fund a penalty payment or contribution. See ABEL User's Manual for a more detailed discussion of related issues." At the bottom center is an "OK" button.

Case Description Details

Note that the partners (or owners) may be held individually liable for this partnership's environmental liabilities. The analyst should investigate whether the financial resources of the partners may be accessed to fund a penalty payment or contribution. See ABEL User's Manual for a more detailed discussion of related issues.

OK

Exhibit 6-8

"1065 TAX FORM FOR 1995" FIRST SCREEN

1065 Tax Form for 1995	
Gross Receipts or Sales Less Returns and Allowances (Line 1c plus gross income from schedules for Lines 4 and 5 plus total gross rental income from Line 17 on Form 8825)	\$3,460
Cost of Goods Sold and/or Operations (Line 2)	
Interest Expense (Line 15 plus interest expense from schedules for Lines 4 and 5 plus sum of Line 9 for all properties on Form 8825)	\$272
Depreciation (Line 9b on Schedule L, Column c minus Column a)	\$352
Depletion and Amortization (Line 10b on Schedule L Column c minus Column a; plus Line 12b on Schedule L, Column c minus Column a)	\$17
Taxable income Before NOL and Special Deductions (Line 25a on Schedule K)	(\$676)
NOL Deductions (Not Applicable)	
Special Deductions (Not Applicable)	
Total Tax (Not Applicable)	
Credit From Regulated Investment Companies (Not Applicable)	
Credit for Federal Tax on Fuels (Not Applicable)	

Exhibit 6-9

"1065 TAX FORM" SECOND SCREEN

1065 Tax Form for 1995 Continued...

Cash (Line 1 on Schedule L, Column d)	\$172
Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	\$339
Inventories (Line 3 on Schedule L, Column d)	
U.S. Government Obligations (Line 4 on Schedule L, Column d)	
Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
Other Current Assets (Line 6 on Schedule L, Column d)	

[Continue](#) [Cancel](#) [Help](#)

Exhibit 6-10

"1065 TAX FORM" THIRD SCREEN

Item Description	Value
Accounts Payable (Line 15 on Schedule L, Column d)	\$5,186
Mortgages, Notes, Bonds Payable in Less Than One Year (Line 16 on Schedule L, Column d)	\$314
Other Current Liabilities (Line 17 on Schedule L, Column d)	\$22,912
Loans from Stockholders (Appears as All Nonrecourse Loans on Line 18 on Schedule L, Column d)	
Mortgages, Notes, Bonds Payable in One Year or More (Line 19 on Schedule L, Column d)	\$2,152
Other Liabilities (Line 20 on Schedule L, Column d)	\$2,058
Appropriated Retained Earnings (Appears as Partners' Capital Accounts on Line 21 on Schedule L, Column d)	(\$27,941)
Unappropriated Retained Earnings (Not Applicable)	
Total Liabilities and Stockholders' Equity (Appears as Total Liabilities and Capital on Line 22 on Schedule L, Column d)	\$4,681
Income Recorded on Books not Included in Return (Not Applicable)	

Continue Cancel Help

Appendix A

TECHNICAL APPENDIX

A. OVERVIEW

The following technical appendix provides a comprehensive explanation of ABEL's calculations. This appendix is meant for financial analysts who wish to obtain a more complete understanding of how the ABEL model computes a firm's historic financial ratios as well as its ability to finance a penalty payment or Superfund contribution. Appendix B, Understanding ABEL's Financial Profile Results, helps the user to better assess the overall financial condition of the firm being analyzed. Appendix B also alerts the user to items to look for on a firm's tax returns.

The variables illustrated in Exhibit A-1 are necessary to fully understand the formulas presented in the remainder of this technical appendix. Exhibit A-1 also provides the associated line numbers from Form 1120 (1996). If the variables are computed internally by ABEL rather than direct inputs from the firm's tax returns, the table references the section in this appendix providing explanatory detail. In addition, the following subscripts apply to all of the variables used in the equations in this appendix:

- Subscript "j" indicates that the variable takes on a different value in each year. Subscript "j" is used only for historic data, with the most recent year's data corresponding to $j=1$ and the least recent year's data corresponding to either $j=3, 4$, or 5 , depending on the number of years of available historic data.
- Subscript "k" is used for the value of variables in future years, with $k=1$ corresponding to the first future year and $k=5$ corresponding to the fifth future year. The beginning of the first future year corresponds to the point in time that the company invests in pollution control equipment as well as the year to which all future cash flows are discounted.
- Subscript "prob" indicates that the variable takes on a different value for each of seven different probability levels.

Exhibit A-1**DESCRIPTIONS OF ABEL TAX-FORM INPUTS AND DERIVED VARIABLES**

Input Variable	Variable Definition	1996 1120 Tax Form Location or Derivation
ACTPAY	Accounts payable	Schedule L, Line 16
ACTREC	Accounts receivable less allowance for bad debts	Schedule L, Line 2b
ALOTAS	All other assets	ABEL calculation (see explanation of Balance Sheet in Section B)
AMORT	Amortization deduction	See attachment to Line 26, Other Deductions; "also review other attachments for declared amortization expenses"
ANN	Annual pollution control costs expressed in ANN\$	Input on "Environmental Expenditures" Screen
ANN\$	The year-dollars of ANN	Input on "Environmental Expenditures" Screen
ASSETS	Total liabilities and stockholders' equity	Schedule L, Line 27
ATFC _{prob,k}	After-tax future cash flow in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
AVCSH	Weighted-average value of XCASH	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
AZS	Altman's Z- Score	ABEL calculation (see explanation of Financial Ratios in Section C)
BNC	Income recorded on books not included in return	Schedule M-1, Line 7
BR	Beaver's Ratio	ABEL calculation (see explanation of Financial Ratios in Section C)
CAPCST	Depreciable capital cost of new investment in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
CAPND	Non-depreciable, nondeductible cost of new investment in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
CARFOR	NOL carryforward expressed in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D))
CASH	Cash	Schedule L, Line 1
CASH\$	PTCASH expressed in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
CASHAT	After-tax cash flows	ABEL calculation (see explanation of Statement of Cash Flows in Section B)

Exhibit A-1**DESCRIPTIONS OF ABEL TAX-FORM INPUTS AND DERIVED VARIABLES**

Input Variable	Variable Definition	1996 1120 Tax Form Location or Derivation
CASHAV	Simple average of CASH\$, excluding most recent year	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
CDET	Mortgages, notes, bonds payable in less than one year	Schedule L, Line 17
CHARGE _{prob}	Present value of five years of ATFCF _{prob,k}	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
CLEAN	Non-depreciable but tax-deductible one-time costs expressed in CLEAN\$	Input on "Environmental Expenditures" screen
CLEAN\$	The year-dollars of CLEAN	Input on "Environmental Expenditures" screen
COMPANY_NAME	Name of the company being analyzed	Input on "Case Description Details" screen
CSTGDS	Cost of goods sold	Line 2
CR	Current Ratio	ABEL calculation (see explanation of Financial Ratios in Section C)
CRFUL	Credit for federal tax on fuels	Line 32d
CRREG	Credit from regulated investment companies	Line 32f
CURAS	Total current assets	ABEL calculation (see explanation of Balance Sheet in Section B)
CURLIB	Total current liabilities	ABEL calculation (see explanation of Balance Sheet in Section B)
DE	Debt-equity ratio	ABEL calculation (see explanation of Financial Ratios in Section C)
DEPL	Depletion deduction	Line 22
DEPR	Depreciation deduction	Line 20
EBIT	Earnings before interest and taxes	ABEL calculation (see explanation of Statement of Cash Flows in Section B)
EQUIP	Depreciable capital cost of new investment in EQUIP\$	Input on "Environmental Expenditures" screen
EQUIP\$	The year-dollars of EQUIP	Input on "Environmental Expenditures" screen

Exhibit A-1

DESCRIPTIONS OF ABEL TAX-FORM INPUTS AND DERIVED VARIABLES

Input Variable	Variable Definition	1996 1120 Tax Form Location or Derivation
EQUIV	Annual equivalent cash flow of CIVIL	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
EXPWT	Weights used to calculate weighted average of historical cash flows	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
FED	Government obligations	Schedule L, Line 4
FTR2	Reinvestment rate	Input on "Model Default Values" screen (Standard Value 0.0)
INC	Pre-tax, pre-NOL-deduction that will be equaled or exceeded with probability "prob"	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
INCAV	Weighted average of INC	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
INTR	Interest expense deduction	Line 18
INV	Inventories	Schedule L, Line 3
ITODAY	Year to which net present value and constant dollar calculations are made; same as penalty payment/ investment year	Input on "Environmental Expenditures" screen
LAND	Non-depreciable, nondeductible one-time costs in LAND\$	Input on "Environmental Expenditures" screen
LAND\$	The year dollars of LAND	Input on "Environmental Expenditures" screen
LST	Loans from stockholders	Schedule L, Line 19
LTD	Mortgages, notes, bonds payable in more than one year	Schedule L, Line 20
MACRS _k	Percentage of CAPCST to be depreciated in year k	Table from U.S. Master Tax Guide (see Ability to Pay Information in Section D)
MRY	Most recent year for which there are input data	Derived by ABEL based on tax return input information
NETSALES	Gross sales less returns and allowances	Line 1c

Exhibit A-1

DESCRIPTIONS OF ABEL TAX-FORM INPUTS AND DERIVED VARIABLES

Input Variable	Variable Definition	1996 1120 Tax Form Location or Derivation
NOL	Net operating loss deductions	Line 29a
NOL _{MRY}	Net operating loss deduction for most recent year of data	Line 29a on most recent year's tax return.
NOLIF	Number of years until NOL carryforward expended	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
NOLRD	NOLIF rounded to the nearest integer	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
NSD _{prob}	Number of standard deviations away from the mean of probability prob	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
NUMYRS	Number of years for which there are data	Input on "Case Description Details" screen
OCL	Other current liabilities	Schedule L, Line 18
OCR	Other current assets	Schedule L, Line 6
OLIB	Other liabilities	Schedule L, Line 21
ONM	ANN expressed in ITODAY dollars	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
OPERPRO	Operating profit	ABEL calculation (see explanation of Income Statement in Section B)
OTEXP	Other expenses (Income)	ABEL calculation (see explanation of Income Statement in Section B)
PBCASH _{prob}	Future pre-tax cash flow that will be equaled or exceeded with probability prob	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
PBINC _{prob}	Future pre-tax pre-NOL-deduction income that will be equaled or exceeded with probability prob	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
PENAL	Civil penalty expressed in ITODAY dollars	Input on "Environmental Expenditures" screen
PENPRB	Probability of being able to afford the penalty amount	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
PTCASH	Pre-tax, pre-reinvestment cash flow	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)

Exhibit A-1**DESCRIPTIONS OF ABEL TAX-FORM INPUTS AND DERIVED VARIABLES**

Input Variable	Variable Definition	1996 1120 Tax Form Location or Derivation
PVTS	The present value as of ITODAY of five years of the tax shields associated with the initial capital investment	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
REAPP	Appropriated retained earnings	Schedule L, Line 24
RETEARN	Total retained earnings	ABEL calculation (see explanation of Financial Ratios in Section C)
REUNAPP	Unappropriated retained earnings	Schedule L, Line 25
SDCSH	Standard deviation of historic constant dollar pre-tax available cash flow	ABEL calculation (see explanation of Ability to Pay Calculations in Section D)
SMOOTH	Smoothing constant used in weighted average calculation	Input on "Model Default Values" screen (Standard value - 0.3)
SPDED	Special deductions	Line 29b
TAX	Total taxes	Line 31
TESEC	Tax-exempt securities	Schedule L, Line 5
TIBNOL	Taxable income before NOL & special deductions	Line 28
TIE	Times interest earned ratio	ABEL calculation (see explanation of Financial Ratios in Section C)
TOTEXP	Total expenses	ABEL calculation (see explanation of Income Statement in Section B)
TOTLIB	Total liabilities	ABEL calculation (see explanation of Balance Sheet in Section B)
TXRT	Total marginal tax rate	Input on "Model Default Values" screen
WC	Working capital	ABEL calculation (see explanation of Financial Ratios in Section C)
XINF	Annual inflation rate	Input on "Model Default Values" screen
YRS	Number of years over which the penalty payment will be spread	Input on "Model Default Values" screen

B. FINANCIAL PROFILE CALCULATIONS

This section of the appendix presents the methodology used in ABEL to calculate the summary balance sheet, income statement and summary of cash flows. The Financial Profile section of the ABEL results allows the user to compare a firm's financial performance over time. It is an easy way to spot inconsistencies within specific cost categories, as well as excessive variation in expenses, income, and deductions as claimed by a firm on its tax returns. For a more general description of a firm's financial profile results, consult Appendix B.

1. Balance Sheet

The balance sheet provides important information about a firm's assets and liabilities. The first section of the balance sheet illustrates a firm's assets. In this section, the entries for accounts receivable, cash, inventories, U.S. government obligations, tax-exempt securities, and other current assets are copied directly from data entered during the ABEL input session for each year. Because the user does not enter total assets during the input session, ABEL computes the figure as equivalent to total liabilities and stockholders' equity. All other assets, ALOTAS, is equivalent to total assets less accounts receivable, cash, inventories, U.S. government obligations, tax-exempt securities, and other current assets.

On the second half of the balance sheet ABEL calculates a firm's total liabilities. Entries for accounts payable, mortgages, bonds payable in less than one year, other current liabilities, loans from stockholders, mortgages, bonds payable in more than one year, and other liabilities are taken directly from data entered by the user during the ABEL input session for each year. ABEL then computes total liabilities, TOTLIB, by summing these entries. Finally, ABEL calculates stockholders' equity, EQUITY, by subtracting total liabilities from total liabilities and stockholders' equity, a figure entered during the ABEL input session.

Formulas:

$$\text{ALOTAS} = \text{ASSETS} - \text{ACTREC} - \text{CASH} - \text{INV} - \text{FED} - \text{TESEC} - \text{OCR}$$

$$\text{TOTLIB} = \text{ACTPAY} + \text{CDET} + \text{OCL} + \text{LST} + \text{LTD} + \text{OLIB}$$

$$\text{EQUITY} = \text{ASSETS} - \text{TOTLIB}$$

2. Income Statement

The income statement illustrates the firm's financial performance. It allows the user to identify whether the firm is generating profits from its daily business operations as well as whether its taxable income is positive. In addition, it highlights a few of the firm's expenses and deductions including depreciation, depletion, amortization, and interest expense spent on servicing its current outstanding debt. On the income statement, gross sales and cost of goods sold are copied directly from inputs entered during the data entry session. Operating profit, OPERPRO, is calculated as the difference between gross sales and cost of goods sold. Taxable income before net operating loss deductions is also entered during the data input session. This figure is then used to calculate total

expenses such that operating profit minus taxable income yields total expenses. Finally, other expenses (income) is derived as the difference between total expenses less interest expense, depreciation, depletion and amortization.

Formulas:

$$\text{OPERPRO} = \text{NETSALES} - \text{CSTGDS}$$

$$\text{TOTEXP} = \text{OPERPRO} - \text{TIBNOL}$$

$$\text{OTEXP} = \text{TOTEXP} - \text{INTR} - \text{DEPR} - \text{DEPL} - \text{AMORT}$$

3. Estimated Cash Flows

ABEL calculates a firm's historic cash flows using the methodology employed in the ability to pay section (Section D). ABEL first calculates available after-tax cash flow. This figure is equivalent to taxable income before net operating losses less taxes paid plus credit for regulated investment companies, credit for federal tax on fuels, depreciation, depletion, amortization, and income recorded on books not included in the return. Finally, ABEL calculates a firm's inflation adjusted available pre-tax cash flows. The calculation uses the inflation rate entered by the user on the "Model Default Values" screen.

Formulas:

$$\text{CASHAT} = \text{TIBNOL} - \text{TAX} + \text{CRREG} + \text{CRFUL} + \text{DEPR} + \text{DEPL} + \text{AMORT} + \text{BNC}$$

The historic pre-tax available cash flow, XNCASH_j , is calculated as:

$$\text{XNCASH}_j = \text{CASHAT}_j + \text{TAX}_j - \text{DEPR}_j$$

Like the historical data provided, these calculations yield available cash flow figures expressed in current (nominal) dollar terms.

Next, ABEL converts the current dollar pre-tax historic available cash flows into inflation-adjusted constant (real) dollars as of the base year (the year that the company will be making the environmental expenditure and/or paying the penalty). This year is represented by the input variable ITODAY. The equation is:

$$\text{XCASH}_j = \text{XNCASH}_j * [(1 + \text{XINF})^{(\text{ITODAY} - \text{MRY} + j - 1)}]$$

where "j" in the exponent takes on the same values as the subscripts j. For this equation to correctly convert current dollars into constant dollars, it is essential that all historic data are for consecutive years.

The annual inflation rate, XINF, is assigned a standard value unless modified by the user on the "Model Default Values" screen.

C. FINANCIAL RATIO CALCULATIONS

This section of the appendix presents the methodology used in ABEL to calculate the five financial ratios. These ratios are often used to evaluate a firm's overall viability and financial structure. Refer to Exhibit A-1 for variables used in the formulas.

1. Debt to Equity Ratio

Formulas:¹

$$DE = \frac{TOTLIB}{EQUITY} \quad \text{where}$$

$$EQUITY = ASSETS - TOTLIB \quad \text{and}$$

$$TOTLIB = ACTPAY + CDET + OCL + LST + LTD + OLIB.$$

Notes:

If $ASSETS = TOTLIB$, then ABEL prints "na," indicating that the ratio cannot be computed. A Debt to Equity ratio of "na" indicates that stockholders' equity is zero, a serious financial condition.

2. Current Ratio

Formulas:

$$CR = \frac{CURAS}{CURLIB} \quad \text{where}$$

$$CURAS = CASH + ACTREC + INV + FED + TESEC + OCR$$

and

$$CURLIB = ACTPAY + CDET + OCL$$

¹ All data for the financial ratios' calculations come from the same year. This is different from the Ability to Pay calculations, described in the next section of this appendix, which references data from different years.

Notes:

If CURAS ≥ 0 and CURLIB = 0, then the current ratio will be assigned a value of "na" for that year. The value of CURAS will determine the category into which that year's current ratio will be classified in ABEL's detailed explanations of the historic financial ratios:

- Those years for which CURAS = 0 and CURLIB = 0 will be classified as having a Current Ratio between 1.0 and 2.0.
- Those years for which CURAS > 0 and CURLIB = 0 will be classified as having a Current Ratio greater than 2.0.

3. Times Interest Earned Ratio**Formulas:**

$$\text{TIE} = \frac{\text{EBIT}}{\text{INTR}} \quad \text{where}$$

$$\text{EBIT} = \text{INTR} + \text{TIBNOL}$$

Notes:

A value of "na" will be assigned to the Times Interest Earned ratio for those years in which INTR = 0. A TIE of "na" indicates that the firm had no interest expense in that year. This situation is inconclusive because it may result from one of two very different situations. If a firm does not pay interest during a given year, then it may not have any outstanding debt that requires servicing. This situation is generally indicative of a strong financial position. However, a firm may also be struggling financially and not have the ability to meet its current interest requirements. This situation is generally indicative of a downward trend in the firm's financial profile.

4. Beaver's Ratio**Formulas:**

$$\text{BR} = \frac{\text{CASHAT}}{\text{TOTLIB}} \quad \text{where}$$

$$\text{CASHAT} = \text{TIBNOL} - \text{TAX} + \text{CRREG} + \text{CRFUL} + \text{DEPR} + \text{DEPL} + \text{BNC}$$

Notes:

The above equation for after-tax cash flow (CASHAT) does not, strictly speaking, include all items that affect cash flow. Not included are changes in non-cash working capital, capital expenditures paid for with cash, dividends, and cash flow resulting from debt and equity financing. The above definition of cash flow was chosen for calculating Beaver's Ratio (BR) because it most closely replicates the definition used by William Beaver in related study (i.e., cash flow equals after-tax net income plus depreciation plus depletion).² Also, Beaver's definition was used as the basis for determining healthy/unhealthy BR cutoff values.³

If TOTLIB = 0, Beaver's ratio will be assigned a value of "na" for that year. A BR of "na" indicates that the firm had no liabilities in that year. Because this situation is unusual, ABEL will recommend that the user check that year's tax return data against all inputs before proceeding.

² William H. Beaver, "Financial Ratios as Predictors of Failure," in Empirical Research in Accounting: Selected Studies, 1966, pages 71-111.

³ Note that the above equation for cash flow is quite sound without requiring an excessive number of ABEL inputs. ABEL utilizes an identical definition of cash flow in its ability to pay conclusion except that it also takes into account reinvestment in equipment (i.e., capital expenditures). Thus, the implicit cash flow assumptions are that net non-cash working capital is at a steady-state level, there are no dividends (or if there are, they can be discontinued in order to finance capital expenditures or to pay penalties), and that the only sustainable cash flows are those from operations rather than from debt or equity financing.

5. Altman's Z-Score⁴

Formulas:

$$AZS = (0.717 * Z_1) + (0.847 * Z_2) + (3.107 * Z_3) + (0.420 * Z_4) + (0.998 * Z_5) \quad \text{where}$$

$$Z_1 = \frac{CURAS - CURLIB}{ASSETS}$$

$$Z_2 = \frac{REAPP + REUNAPP}{ASSETS}$$

$$Z_3 = \frac{EBIT}{ASSETS}$$

$$Z_4 = \frac{EQUITY}{TOTLIB}$$

$$Z_5 = \frac{NETSALES}{ASSETS}$$

Notes:

If ASSETS = 0 or TOTLIB = 0, ABEL will assign that year's Altman's Z-Score (AZS) a value of "na." An AZS of "na" indicates that a numerical value could not be computed for that year because either total assets or total liabilities were equal to zero. Because these situations are unusual, ABEL will recommend that the user check the actual tax return against all data inputs for that year before proceeding.

D. ABILITY TO PAY CALCULATIONS

This section presents ABEL's ability to pay calculations and decision rules. ABEL discounts a firm's projected internally generated cash flows back to the date on which the firm will incur the environmental expenditure. All after-tax cash flows associated with the pollution control activity and penalty are subtracted out of these cash flows to estimate the funds that will remain after these

⁴ Edward I. Altman, Corporate Financial Distress: A Complete Guide to Predicting, Avoiding and Dealing with Bankruptcy, 1983, and "The Success of Business Failure Prediction Models", Journal of Banking and Finance, Vol. 8, pages 171-198, June 1984.

expenditures. If the present value of these net cash flows is greater than or equal to zero, the firm is deemed able to pay for both the pollution control expenditures and the penalty. If the present value is negative, however, the firm is deemed unable to fund all or a portion of the expenditures and/or penalty.

While the technique of discounting cash flows is well accepted by the financial community, the actual implementation in this context is quite complex. To begin, seven main steps are involved in the ability to pay calculations:

1. Calculate the firm's pre-tax historic available cash flows;
2. Adjust the historic available cash flows for inflation;
3. Compute the mean and standard deviation of the historic inflation-adjusted pre-tax available cash flows;
4. Estimate the firm's future available pre-tax cash flows;
5. Compute the present value of five years of the firm's future available after-tax cash flows;
6. Compute the present value of five years of the after-tax cash flows associated with the new (pollution control and penalty) expenditures; and
7. Compute the resulting net present value of all cash flows and adjust it for the penalty payment.

1. Detailed Ability to Pay Calculations

Refer to Exhibit A-1 in Section A of this appendix for definitions of the variables used in the ability to pay calculations.

Step 1: Calculate Pre-Tax Historic Available Cash Flow

ABEL first calculates the historic pre-tax available cash flow, $XNCASH_j$:

$$XNCASH_j = CASHAT_j + TAX_j - [FTR2 * DEPR_j]$$

where the reinvestment rate, $FTR2$, is assigned a standard value of 0.0 unless modified by the user on the "Model Default Values" screen. Like the historical data provided, these calculations yield available cash flow figures expressed in current (nominal) dollar terms. A firm's pre-tax historic available cash flows can be found on the Financial Profile section of the ABEL model output.

Step 2: Adjust Available Cash Flows for Inflation

ABEL again converts the current dollar pre-tax historic available cash flows into inflation-adjusted constant (real) dollars as of the base year (the year that the company will be making the environmental expenditure and/or paying the penalty). This year is represented by the input variable ITODAY. The equation is:

$$XCASH_j = XNCASH_j * [(1 + XINF)^{(ITODAY - MRY + j - 1)}]$$

where "j" in the exponent takes on the same values as the subscripts j. For this equation to correctly convert current dollars into constant dollars, it is essential that all historic data are for consecutive years.

The annual inflation rate, XINF, is assigned a standard value unless modified by the user on the "Model Default Values" screen. A firm's inflation adjusted pre-tax cash flows can be found on the Financial Profile section of the ABEL model output.

Step 3: Compute Mean and Standard Deviation of Historic Constant Dollar Pre-Tax Available Cash Flows

The equation for the weighted average of the constant dollar historic pre-tax available cash flows, AVCSH, is:

$$AVCSH = \sum_{j=1}^{NUMYRS} (XCASH_j * EXPWT_j) \quad \text{where}$$

$$EXPWT_j = \frac{SMOOTH * (1 - SMOOTH)^{j-1}}{SMSUM}$$

$$\text{and} \quad SMSUM = \sum_{j=1}^{NUMYRS} [SMOOTH * (1 - SMOOTH)^{(j-1)}]$$

The variance and standard deviation of the historic constant dollar pre-tax available cash flows are computed using the following equations:

$$SDCSH = VARCSH^{0.5} \quad \text{where}$$

$$\text{VARCSH} = \frac{\sum_{j=1}^{\text{NUMYRS}} (\text{XCASH}_j - \text{AVCSH})^2 * \text{EXPWT}_j * \text{NUMYRS}}{\text{NUMYRS} - 1}$$

Step 4: Estimate Future Available Pre-Tax Cash Flows

This equation calculates the constant dollar available cash flows that a firm can be expected to generate in the future at different probability levels. We assume that the firm's total population of all of its historic constant dollar available cash flows are normally distributed.

ABEL employs the T-distribution as the basis for estimating probabilities, because of the small number of data points used in the calculations. In general, if a population is normally distributed, then one can estimate the percentage of data points in the population that will exceed a particular value by using a standard normal table. Even if we are only dealing with a subset of the entire population, we can still use the standard normal table to estimate percentages (probabilities), providing the sample is large enough, typically in excess of fifteen to thirty data points. When the population is normally distributed but the sample size is very small, the T-distribution table is the analytically correct approach for estimating probabilities. The T-distribution, also referred to as the sampling distribution, has the same symmetrical bell-shaped curve as the normal distribution. It is somewhat flatter and lower at the mean, however, as well as somewhat more dense in the two tails than the normal distribution.

The calculation of the future expected pre-tax cash flow, at each probability level, is calculated as follows:

$$\text{PBCSH}_{\text{prob}} = \text{AVCSH} - (\text{SDCSH} * \text{NSD}_{\text{prob}})$$

In this equation, the value of NSD_{prob} is taken from the look-up table shown in Exhibit A-2. These T-distribution values can be found in any statistics book; two books are listed in Exhibit A-2 for reference purposes.

Exhibit A-2			
VALUE OF NSD_{prob}			
	Number of Years of Historic Data		
Probability	3	4	5
50%	0.000	0.000	0.000
60%	0.289	0.277	0.271
70%	0.617	0.584	0.569
80%	1.061	0.978	0.941
90%	1.886	1.638	1.533
95%	2.920	2.353	2.132
99%	6.965	4.541	3.747
Sources: 1. E. Mansfield, <u>Statistics for Business and Economics</u> , Third Edition, W.W. Norton & Co., 1987, p. A16. 2. Pindyck & Rubinfeld, <u>Econometric Models & Economic Forecasts</u> , Second Edition, McGraw-Hill, 1981, p. 608.			

For example, the equation for the minimum pre-tax cash flow that we could expect to obtain 80% of the time, using five years of data, is:

$$PBCSH_{80\%} = AVCSH - (SDCSH * 0.941)$$

Step 5: Compute Present Value of Future Available After-Tax Cash Flows

The present value of five years of expected future available after-tax cash flows for a given probability level, designated as CHARGE_{prob}, is calculated from the following equation:⁵

⁵ This discussion assumes that the user selected the default value of 5 years of future cash flow considered available for penalty or contribution to EPA. If the user entered 2, 3, or 4 years of future cash flow, then ABEL would calculate the sum of after-tax cash flow for the appropriate number of years.

$$\text{CHARGE}_{\text{prob}} = \sum_{k=1}^5 \text{ATFCF}_{\text{prob},k} * \left[\frac{1 + \text{XINF}}{1 + \text{XNRATE}} \right]^{k-0.5} \quad \text{where}$$

$$\text{ATFCF}_{\text{prob},k} = \text{PBCSH}_{\text{prob}} - \text{TAXES}_{\text{prob},k}$$

In this equation $\text{ATFCF}_{\text{prob},k}$ represents the after-tax future available cash flow for year "k" and probability level "prob." The value of this variable corresponds to constant ITODAY dollars, as can be seen from Steps 2 through 4 above. In the ABEL model output, CHARGE is listed under "Total Cash Flow Generated by a Firm."

A number of comments are necessary to clarify the previous set of equations:

- In the equation for $\text{CHARGE}_{\text{prob}}$, first we inflate $\text{ATFCF}_{\text{prob},k}$ to nominal year "k" dollars and then we discount that cash flow back to ITODAY using the firm's nominal discount rate. The calculation is made in this manner because finance theory dictates that nominal cash flows be discounted at the nominal discount rate and real cash flows be discounted at the real interest rate.
- The exponent in the equation for $\text{CHARGE}_{\text{prob}}$ uses half-years since the company's annual cash flows are assumed to occur in the middle of each year. This convention balances off cash flows which occur in the first half of the year with those that occur in the second half of the year.
- XNRATE, the weighted average cost of capital, is an after-tax discount rate and is applied to after-tax cash flows.

$\text{TAXES}_{\text{prob},k}$ are calculated as follows. This calculation is complex since we must estimate the number of years before the most recent year's net operating loss (NOL) carryforward is expended, and calculate the amount of income on which taxes are based for the seven different probability levels.

- Calculate historic pre-tax pre-NOL-deduction income in ITODAY dollars:

$$\text{INC}_j = (\text{TIBNOL}_j - \text{SPDED}_j) * (1 + \text{XINF})^{(\text{ITODAY} - \text{MRY} + j - 1)}$$

- Calculate the historic weighted average of pre-tax pre-NOL-deduction income in ITODAY dollars, denoted by INCAV:

$$\text{INCAV} = \sum_{j=1}^{\text{NUMYRS}} (\text{INC}_j * \text{EXPWT}_j)$$

- c. Calculate the standard deviation of historic pre-tax pre-NOL-deduction income in nominal ITODAY dollars:

$$\text{SDINC} = \left[\sum_{j=1}^{\text{NUMYRS}} \frac{(\text{INC}_j - \text{INCAV})^2 * \text{EXPWT}_j * \text{NUMYRS}}{\text{NUMYRS} - 1} \right]^{.5}$$

- d. Calculate the future expected pre-tax pre-NOL-deduction income which will be equaled or exceeded with a given probability, $\text{PBINC}_{\text{prob}}$:

$$\text{PBINC}_{\text{prob}} = \text{INCAV} - (\text{SDINC} * \text{NSD}_{\text{prob}})$$

where the value of NSD_{prob} is taken from the "look-up" table presented in Exhibit A-3.

- e. Calculate the NOL carryforward, as of the end of the most recent year of historic data, expressed in ITODAY dollars:

$\text{CARFOR} = \text{Minimum of 0 or}$

$$(\text{TIBNOL}_{\text{MRY}} - \text{NOL}_{\text{MRY}} - \text{SPDED}_{\text{MRY}}) * (1 + \text{XINF})^{(\text{ITODAY} - \text{MRY})}$$

Note that the NOL carryforward is expressed as a negative number.

- f. Calculate the number of years after the most recent year of historic data until the NOL carryforward will be completely expended:

$$\text{NOLIF} = \frac{-\text{CARFOR}}{\text{INCAV}} \quad \text{where}$$

$\text{NOLRD} = \text{NOLIF}$ rounded up/down to the nearest integer. Note that if NOLIF is exactly 0, then NOLRD would also be exactly 0.

- g. Use the decision rules shown in Exhibit A-3 to determine $\text{TAXES}_{\text{prob,k}}$.

Exhibit A-3		
DECISION RULES FOR CALCULATING FUTURE YEARS' TAXES		
CARFOR	PBINC_{prob}	Decision Rule
= 0	> 0	Calculate TAXES _{prob,k} = TXRT * PBINC _{prob} for all k. ⁶
= 0	<= 0	TAXES _{prob,k} = 0 for all k ⁷
< 0	<= 0	TAXES _{prob,k} = 0 for all k ⁸
< 0	> 0	<p>The company will begin paying taxes after its NOL carryforward has been expended.</p> <p>a. If $(k - 1 + \text{ITODAY} - \text{MRY}) \leq \text{NOLRD}$, then TAXES_{prob,k}=0.</p> <p>b. If $(k - 1 + \text{ITODAY} - \text{MRY}) > \text{NOLRD}$, then TAXES_{prob,k} = TXRT * PBINC_{prob}.</p>
Source: The tax rates are taken from the Federation of Tax Administrators.		

Step 6: Compute Present Value of After-Tax Cash Flows Associated with New Capital Investment

Three primary components of new pollution control capital investments affect after-tax cash flow: (1) the original capital investment; (2) the depreciation and deduction tax shields associated with the investment (corresponding to EQUIP and CLEAN, respectively); and (3) the annual operating expenses. The equation for the present value of five years of after-tax cash flows for each of these is developed below.

⁶ The company has no NOL carryforward and a positive taxable income at this probability level, so must pay taxes in all years.

⁷ The company has no NOL carryforward but has negative taxable income at this probability level. The company will not pay any taxes and will build up an NOL carryforward.

⁸ The company has an NOL carryforward and negative taxable income at this probability level. The company will not pay any taxes, and its NOL carryforward will grow in size.

- a. Calculate the present value of the initial capital investment, denoted by PVCAP, as of the beginning of ITODAY:

$$\text{PVCAP} = -\text{CAPCST} - \text{CAPND} - \text{TXND}.$$

The initial capital investment consists of a single cash outflow at the beginning of ITODAY, and consists of three parts:

- CAPCST is the constant dollar depreciable capital cost of the new pollution control investment.
- CAPND is the constant dollar nondepreciable, non-tax-deductible one-time costs of the new investment.
- TXND is the constant dollar nondepreciable but tax-deductible capital one-time costs.

PVCAP + PVTS is labeled "Initial Pollution Control Expenditures" on the ABEL model output.

Since the above capital cost cash flows all occur at the beginning of year ITODAY, there is no need to discount them; they already represent present values. To obtain the constant ITODAY-dollar capital costs, however, we need to adjust the user-entered capital costs:

$$\text{CAPCST} = \text{EQUIP} * (1 + \text{XINF})^{(\text{ITODAY} - \text{EQUIP\$})}$$

where EQUIP is the user-provided CAPCST expressed in year EQUIP\$ dollars.

$$\text{CAPND} = \text{LAND} * (1 + \text{XINF})^{(\text{ITODAY} - \text{LAND\$})}$$

where LAND is the user-provided CAPND expressed in year LAND\$ dollars.

$$\text{TXND} = \text{CLEAN} * (1 + \text{XINF})^{(\text{ITODAY} - \text{CLEAN\$})}$$

where CLEAN is the user-provided TXND expressed in year CLEAN\$ dollars.

- b. Calculate the present value of the tax shields, PVTS, associated with the initial capital investment, as of ITODAY.

There are two sources of tax shields corresponding to the initial pollution control capital investment, both of which serve to reduce taxes and thereby increase cash flow. The two sources are the depreciation tax shields associated with CAPCST and the nondepreciable but tax-deductible items, represented by TXND, that are written off for tax purposes in year ITODAY.

In order to be consistent with the Tax Reform Act of 1986 and the July 1990 version of BEN, CAPCST will be depreciated under the Modified Accelerated Cost Recovery System

(MACRS). MACRS calls for the use of double declining balance (DDB) depreciation with half-year convention, a seven year life, and a switch from DDB to the straight line method in the fifth year. The switch is made in the year depreciation equals or exceeds that determined under DDB in order to maximize the depreciation deduction. The total depreciation and deduction tax shield for the year in which the investment is made (i.e., $k=1$) is:

$$TS_{k=1} = TXRT * [(CAPCST * .14286) + TXND]$$

where the value of .14286 is taken from a MACRS depreciation schedule.⁹

For years $k=2$ to 5, the total tax shield consists solely of the depreciation tax shield and is given by the formula:

$$TS_k = TXRT * CAPCST * MACRS_k$$

where $MACRS_k$ is taken from the following table:¹⁰

k	MACRS_k
2	0.24490
3	0.17493
4	0.12495
5	0.08925

The present value as of ITODAY of five years of the tax shields associated with the initial capital investment is given by:

$$PVTS = \sum_{k=1}^5 \frac{TS_k}{(1 + XNRATE)^{k-0.5}}$$

Note that it is not appropriate to inflate the tax shields to current dollars before discounting them since the actual depreciation in any year is a fixed dollar amount, and is thus already in each year's current dollars. Also, we use the weighted average cost of capital as the discount rate since

⁹ For example, refer to p. 307 of the 1990 U.S. Master Tax Guide.

¹⁰ *Ibid.*

it incorporates the firm's overall risk level. Finally, the exponent in the equation for PVTS uses half-years since tax shields increase cash flow and the company's annual cash flows are assumed to occur in the middle of each year, as discussed previously.

- c. Calculate the present value of the after-tax annual cash flows, PVONM, as of ITODAY:

$$PVONM = -ONM * (1 - TXRT) * \sum_{k=1}^5 \left[\frac{1 + XINF}{1 + XNRATE} \right]^{k-0.5}$$

where ONM represents the annual expense (ANN), expressed in ITODAY dollars.

The value provided by the user for this expense must, however, first be converted into ITODAY dollars:

$$ONM = ANN * (1 + XINF)^{(ITODAY - ANNS)}$$

where ONM is the user-provided ANN expressed in year ITODAY dollars.

The above equation for the present value of annual expenses assumes that these expenses escalate at the inflation rate and that they occur in the middle of the year. The weighted average cost of capital is again used as the discount rate. PVONM is labeled "Total Annual Pollution Control Costs" on the ABEL model output.

Step 7: Compute Resulting Net Present Value of Five Years of After-Tax Future Cash Flows for All Probability Levels

$$XNET_{\text{prob}} = \text{CHARGE}_{\text{prob}} + PVONM + PVTS + PVCAP$$

where $XNET_{\text{prob}}$ represents the present value, as of the beginning of ITODAY, of five years of net after-tax cash flows available to the firm for discretionary uses. XNET is labeled "Firm Cash Flow Net of Penalty/Contribution and Pollution Control Expenditures" on the ABEL model output.

Note that this does not mean that the firm will have enough cash on hand as of ITODAY to make a lump sum penalty payment equal to $XNET_{\text{prob}}$. If the firm's current financial position is strong, however, as determined in the Financial Ratios section, and XNET is sufficiently large with, for example, an 80% confidence level, then ABEL assumes that the firm would be able to obtain additional debt or equity financing sufficient to pay a lump sum penalty of that amount.

Step 8: Convert the Penalty into an Annual Equivalent Cash Flow

Rather than paying a single lump-sum penalty at the beginning of ITODAY, the government may wish to allow a company to spread payment of that penalty over several years in equal installments. The first installment would occur during ITODAY and the remaining installments would occur at the same time during each of the following years. This option is presented to the user during the input phase on the "Model Default Values" screen. The annual installment amount is:

$$\text{EQUIV} = \frac{\text{CIVIL}}{1 + \sum_{k=1}^{\text{YRS}-1} \frac{1}{(1 + \text{XNRATE})^k}}$$

where CIVIL is the penalty input as PENAL in ITODAY dollars.

Note that this annual installment is already expressed in current dollar terms since the equation was derived by discounting nominal cash flows at the firm's nominal interest rate. It also assumes that the initial payment is paid as of ITODAY. For standard ABEL cases, XNRATE is equivalent to the value entered on the Model Default Values Screen. For Superfund ABEL cases, the Superfund interest rate is used to calculate annual equivalent cash flow.¹¹

¹¹ Consistent with EPA policy outlined in a memorandum titled *General Policy on Superfund Ability to Pay Determinations*, dated 30 September 1997, the Superfund interest rate should be used to calculate ability to pay settlements that include payments over time. The Superfund interest rate that should be used through September 30, 1998 is 5.61 percent. This rate is based on the investment rate of the Superfund trust fund. All Superfund contributions are invested annually in one type of treasury bill. The Superfund AtP rate is approximately equal to the yield on this bill.

Step 9: Calculate the Probability Level Associated with the Penalty Amount Using Linear Interpolation

ABEL will have previously computed the values in the right hand column of the following table:

Probability	Value
50%	$XNET_{\text{prob}=50\%}$
60%	$XNET_{\text{prob}=60\%}$
70%	$XNET_{\text{prob}=70\%}$
80%	$XNET_{\text{prob}=80\%}$
90%	$XNET_{\text{prob}=90\%}$
95%	$XNET_{\text{prob}=95\%}$
99%	$XNET_{\text{prob}=99\%}$

A computer algorithm calculates the probability level associated with a given penalty amount, as follows:

1. Determine the two consecutive values in the right column of the above table between which CIVIL falls.
2. Perform a linear interpolation to determine the probability level associated with CIVIL. Assign that probability level as a string to the variable PENPRB.¹²
3. If the numerical value of PENPRB < 60%, then set PENPRB equal to the string "less than 50."
4. If the numerical value of PENPRB > 99%, then set PENPRB equal to the string "99+."

¹² For example, if $XNET_{\text{prob}=80\%} = 100$, $XNET_{\text{prob}=90\%} = 70$, and $CIVIL = 80$, then $PENPRB = 90 - (90 - 80) * [(80 - 70) \div (100 - 70)] = 86.7$. 86.7 would then be converted to the string "86.7."

E. ABILITY TO PAY CALCULATIONS FOR SUPERFUND CASES

ABEL also calculates a firm's ability to pay a Superfund contribution. The difference between traditional ABEL calculations and Superfund ABEL calculations involves how the model evaluates a firm's cash flows. Superfund ABEL evaluates a firm's ability to pay on a pre-tax basis because remediation costs are generally tax-deductible, whereas standard penalty payments are non-tax-deductible. The method in which ABEL computes a firm's financial profile and ratios for a firm in violation of CERCLA regulations is exactly the same as for a standard ABEL case. See Sections B and C in this technical appendix for more information on these calculations.

In analytic terms, the ABEL model calculates a firm's "Affordable Annual Costs" as equivalent to $PBCSH_{prob}$, discussed in Section D, Step 4 of this appendix. This equation calculates the constant dollar pre-tax available cash flows that a firm can be expected to generate in the future at different probability levels. Finally, ABEL calculates a firm's "Affordable One-Time Charge" as the present value of five years expected future available pre-tax cash flows for a given probability level ($PBCSH_{prob}$) using the inflation rate and discount rate entered on the "Model Default Values" screen. This calculation is equivalent to $CHARGE_{prob}$, with the exception that it includes pre-tax cash flows as opposed to after-tax cash flows used in standard ABEL cases. This calculation is discussed in Section D.5 of this appendix. The "Cash Flow Net of Superfund Cleanup Cost" is simply $CHARGE_{prob}$ less the Superfund contribution specified by the user on the "Environmental Expenditures" screen.

Formulas:

$$PBCSH_{prob} = AVCSH - (SDCSH * NSD_{prob})$$

$$CHARGE_{prob} = \sum_{k=1}^5 PTFCF_{prob,k} * \left[\frac{1 + XINF}{1 + XNRATE} \right]^{k-0.5}$$

F. DECISION RULE FOR CHANGING SMOOTHING CONSTANT

ABEL will occasionally suggest that the user adjust the smoothing constant. ABEL compares the average income generated over all years except the most recent year with cash flows generated in the most recent year. If the most recent year's cash flow is significantly better or worse than the historical average, ABEL will recommend changing the smoothing constant.

ABEL will suggest changing the smoothing constant to 0.7 (i.e., placing more significance on the most recent year of data) if:

$$\text{CASHD}_{j=1} < \frac{\text{AVCASHD}}{2}$$

or $\text{CASHD}_{j=1} < 0$ and $\text{TMP} < 0$

Formulas:

$$\text{PTCASH}_j = \text{CASHAT}_j + \text{TAX}_j$$

$$\text{CASHD}_j = \text{PTCASH}_j * (1 + \text{XINF})^{j-1}$$

$$\text{AVCASHD} = \sum_{j=2}^{\text{NUMYRS}} \frac{\text{CASHD}_j}{\text{NUMYRS}}$$

$$\text{TMP} = \sum_{j=1}^{\text{NUMYRS}} \text{CASHD}_j + \text{EXPWT}_j$$

Appendix B

UNDERSTANDING ABEL'S FINANCIAL PROFILE RESULTS

May 1998

INTRODUCTION

The financial profile section of the ABEL results is likely to present familiar, but perhaps confusing, information. With a little effort, however, ABEL users can use the information to better assess the financial condition of the firm being analyzed. The information presented in this section is similar in substance and format to financial data appearing in a business's own financial statements; in fact, all of the information is taken from the firm's income tax returns, which are simply a standardized form of financial statements. The information is broken into three parts: balance sheet, income statement, and summary of cash flows. This primer on understanding financial information will not make you an expert in financial analysis; however, after reading this section, you should be able to penetrate the information and better understand the results of the ABEL model. We suggest you contact a financial analyst if you have questions or if you wish to conduct a complete review of this information.

The balance sheet presents a snapshot of a firm's financial position at a moment in time, showing its assets, liabilities, and shareholders' equity. Liabilities and shareholders' equity represent sources of funds to the firm. Liabilities represent loans from banks, owners, or customers, and shareholders' equity represents funds (or capital) provided by owners or the firm itself through retained profits. Assets represent the items that the firm has purchased with these funds. In other words, the balance sheet is a static presentation of what the firm has purchased and the amount of debt or equity used to finance those purchases. Since the firm cannot purchase more items than it has resources to fund them, assets must always equal the sum of liabilities and shareholders' equity; hence, we refer to this financial statement as the "balance" sheet.

While the balance sheet presents a snapshot of a firm's financial condition, the income statement summarizes the operating activities of a firm over a period of time; it represents a link between a firm's balance sheet at the beginning of a period and the end of a period. The income statement shows the income earned by a firm in a particular period and the expenses incurred to generate that income.

The summary of cash flows reconciles the flow of cash in and out of the firm with the flow of income and expenses in and out of the firm. The flow of cash is not necessarily the same as the flow of income and expenses, as discussed in more detail below. ABEL uses these past cash flows to predict future cash flows and derive its ability to pay conclusion. As a result, this information is critical to an ability to pay analysis.

The following sections discuss these issues in greater detail. Using the ABEL financial profile for the case example, Town Tool Company, we discuss each item and describe its relevance to the ability to pay assessment.

Financial Profile

In Dollars

Town Tool Company

C Corporation, Tax Form 1120

Run Description: \$250,000 Penalty

	1996	1995	1994	1993
Balance Sheet				
Assets				
Cash	\$ 61,247	\$ 76,316	\$ 39,378	\$ 56,838
Accounts Receivable	\$ 197,831	\$ 175,573	\$ 187,016	\$ 194,861
Inventories	\$ 10,631	\$ 11,653	\$ 33,810	\$ 23,659
U.S. Government Obligations	\$ 0	\$ 0	\$ 0	\$ 0
Tax-Exempt Securities	\$ 0	\$ 0	\$ 0	\$ 0
Other Current Assets	\$ 3,447	\$ 3,655	\$ 4,844	\$ 2,663
All Other Assets*	\$ 191,447	\$ 144,007	\$ 106,522	\$ 114,709
Total Assets	\$ 464,603	\$ 411,204	\$ 371,570	\$ 392,730
Liabilities				
Accounts Payable	\$ 15,885	\$ 19,023	\$ 15,096	\$ 80,802
Mortgages, Bonds Payable in < 1 Year	\$ 0	\$ 0	\$ 12,000	\$ 12,000
Other Current Liabilities	\$ 57,023	\$ 61,721	\$ 41,355	\$ 23,732
Loans from Stockholders	\$ 53,420	\$ 92,068	\$ 33,039	\$ 6,449
Mortgages, Bonds Payable in > 1 Year	\$ 0	\$ 0	\$ 45,500	\$ 46,500
Other Liabilities	\$ 0	\$ 0	\$ 0	\$ 0
Total Liabilities	\$ 126,328	\$ 172,812	\$ 146,990	\$ 169,483
Stockholders' Equity	\$ 338,275	\$ 238,392	\$ 224,580	\$ 223,247
Total Liabilities and Stockholders' Equity	\$ 464,603	\$ 411,204	\$ 371,570	\$ 392,730

Income Statement				
Gross Sales	\$ 1,166,708	\$ 1,118,814	\$ 925,914	\$ 797,194
Cost of Goods Sold	\$ 828,566	\$ 890,456	\$ 744,846	\$ 205,648
Operating Profit	\$ 338,142	\$ 228,358	\$ 181,068	\$ 591,546
Other Expenses and Income				
Interest Expense	\$ 0	\$ 0	\$ 360	\$ 4,950
Depreciation	\$ 60,085	\$ 52,075	\$ 49,631	\$ 31,722
Depletion and Amortization	\$ 0	\$ 0	\$ 0	\$ 0
Other Expenses (Income)**	\$ 276,034	\$ 159,703	\$ 129,167	\$ 522,677
Total Expenses (Income)	\$ 336,119	\$ 211,778	\$ 179,158	\$ 559,349
Taxable Income Before NOL	\$ 2,023	\$ 16,580	\$ 1,910	\$ 32,197

Summary of Estimated Cash Flow				
Taxable Income Before NOL	\$ 2,023	\$ 16,580	\$ 1,910	\$ 32,197
Tax	\$ (303)	\$ (2,487)	\$ (287)	\$ (4,830)
Credit for Regulated Investment	\$ 0	\$ 0	\$ 0	\$ 0
Credit for Federal Fuels	\$ 0	\$ 0	\$ 0	\$ 0
Depreciation	\$ 60,085	\$ 52,075	\$ 49,631	\$ 31,722
Depletion and Amortization	\$ 0	\$ 0	\$ 0	\$ 0
Income Not Included on Return	\$ 0	\$ 0	\$ 0	\$ 0
Available After-Tax Cash Flow	\$ 61,805	\$ 66,168	\$ 51,254	\$ 59,089
Available Pre-Tax Cash Flow	\$ 62,108	\$ 68,655	\$ 51,541	\$ 63,919
Adjusted for Inflation	\$ 64,033	\$ 72,978	\$ 56,484	\$ 72,221

* May include loans to stockholders, mortgage and real estate loans, other investments, buildings and other depreciable assets, depletable assets, land, intangible assets, and other long-term assets; see Schedule L of firm's federal income tax return.

** Includes additional income categories listed on page 1, Income Section, of firms's federal income tax return and additional expense categories listed on page 1, Deductions Section, of firms's federal income tax return.

BALANCE SHEET

The balance sheet is broken into three components: assets, liabilities, and shareholders' equity. Assets represent the investing activities of the firm; liabilities and shareholders' equity represent the financing activities of the firm. It is important to consider three factors when assessing items appearing on the balance sheet, including: (1) when the balance sheet item is recognized (i.e., determining when a financial transaction legitimately results in the generation of an asset, liability, or equity); (2) how the balance sheet item is valued; and (3) how it is classified.

Assets

Assets are resources that: (a) have a potential for providing the firm with future economic benefits; (b) can be measured in dollar terms; and (c) are owned and controlled by the firm as a result of past transactions. Assets are generally valued using their acquisition or historical cost. They are typically classified according to their longevity, yielding two broad categories of assets, current assets and long-lived assets.

Current Assets

In general, current assets include cash and other assets that will likely be converted into cash in the near future, generally within one year from the date of the balance sheet.

- **Cash** includes coins and currency held by the firm or in bank deposits. At the end of 1996, Town Tool held \$61,247 in cash accounts.
- **Accounts receivable** represent amounts due from customers but not yet collected. After goods are shipped or a service provided, a customer typically has a certain period of time (e.g., 30, 60, or 90 days) in which to pay. At the end of 1996, customers had yet to pay for \$197,831 worth of goods they had received from Town Tool.
- **Inventories** represent raw materials held as inputs to a production process, partially finished goods in the process of manufacture, or finished goods ready for resale, such as automobiles coming off an assembly line or canned goods on the shelves of a grocery store. Town Tool had \$10,631 worth of inventories at the end of 1996.
- **U.S. government obligations** are notes or bonds issued by the Federal government and purchased by the firm. They represent very liquid assets that, in general, can be easily converted into cash. Town Tool owned no government notes or bonds at the end of 1996.

- **Tax-exempt securities** are notes or bonds issued by authorities with certain tax-exempt status, primarily municipalities. In most cases, these debt instruments are easily sold and converted into cash. Town Tool owned no tax-exempt securities at the end of 1996.
- **Other current assets** include a variety of items that are likely to be converted into cash over the next operating period. These assets, which totaled \$3,447 for Town Tool at the end of 1996, should be itemized in an attachment to the tax returns.

Long-Lived Assets

The category, "All Other Assets," appearing in the summary balance sheet includes a number of long-lived assets detailed on Schedule L (page 4) of the tax return. If you reference the tax returns for Town Tool included in the main section of this manual, you will notice that Town Tool owns a number of long-lived assets. They represent assets that are not intended for sale in the near term and generally are used continually over time throughout the production process. The asset items appearing in Schedule L include:

- **Loans to stockholders** represent money loaned to owners of the company. EPA generally regards such loans as being available to fund a penalty payment or Superfund contribution. Presumably, the owners could borrow equivalent sums from a commercial lending institution and repay the loan to the firm.
- **Mortgage and real estate loans** are funds loaned to other parties for purchasing real estate property. Depending on the nature of these loans, they may be "callable" to fund an environmental expenditure.
- **Other investments** represent funds the firm has used to purchase a variety of assets that it does not intend to liquidate in the near future. These assets and their value should be itemized in an attachment to the tax return.
- **Buildings and other depreciable assets** are manufacturing facilities, warehouses, and other pieces of productive equipment. Since their productive capacities are likely to last for a period of years, these assets are depreciated over time. Depreciation represents the allocation of the purchase price of these assets over their useful life. Referencing Town Tool's tax returns, the company owned buildings and other depreciable assets with a book value (net of depreciation) of \$191,447 at the end of 1996.

- **Depletable assets** generally include natural resource reserves, like oil or coal.
- **Land** is simply property owned by the company.
- **Intangible assets** include patents, non-compete agreements, and goodwill among others. Patents and non-compete agreements are rights granted or purchased to exclude others from manufacturing, using, or selling certain processes or devices. Goodwill is an amount paid by the firm in acquiring another business enterprise that is greater than the sum of the then-current values assignable to the business's identifiable assets. Brand names, for example, represent something of potentially considerable, but intangible, value.
- **Other assets** includes those assets not identified above. An itemization of these assets should be included in an attachment to the tax returns.

Liabilities

Liabilities are obligations of the firm to transfer assets or provide services at a specific time in the future as a result of past transactions. Liabilities are generally measured at their current cash value (if payment is to be made within one year) or cost (the amount originally borrowed). Like assets, liabilities are typically classified into two categories, current and long-term.

Current Liabilities

Current liabilities include all debts that fall due within the next operating period (typically 12 months). They have a close relationship with current assets, since current assets represent the source of funds available to settle a firm's current liabilities. The ability of a firm to fund its current liabilities by converting current assets into cash is one of the most important indications of financial health.

- **Accounts payable** are amounts owed for goods or services acquired under an informal credit agreement. These accounts are usually payable within one or two months. (The same items appear as accounts receivable on the creditors' balance sheet.) At the end of 1996, Town Tool owed \$15,885 for goods it had received from suppliers but had not yet paid for.
- **Mortgages, bonds payable in less than one year** equal the face amount of promissory notes given in the connection with loans from a bank or other lending entity. Town Tool listed no such liabilities in 1996.

- **Other current liabilities** includes other liabilities not categorized above. These items, which totaled \$57,023 for Town Tool at the end of 1996, should be itemized in an attachment to the tax return.

Long-Term Liabilities

Long-term liabilities represent debts owed by the firm that are due in more than one year. They are important from an ability to pay perspective because the amount of debt held by a firm affects its debt capacity, or ability to borrow additional money, perhaps to fund a penalty payment or remediation expenditure.

- **Loans from stockholders** represents funds loaned to the firm by its owners. Town Tool owed \$53,420 to its owners at the end of 1996.
- **Mortgages, bonds payable in more than one year** are long-term promissory notes or mortgages representing sums of money borrowed for a relatively long period of time under a formal written contract. It is the portion of the firm's liabilities that are not likely to be repaid within the current year. Town Tool held no long-term debt at the end of 1996.

Shareholders' Equity

Shareholders' equity represents the total interest that all shareholders have in the corporation. It is equal to the firm's net worth, or assets less liabilities. This item is typically split into two general components, capital stock and retained earnings. Capital stock represents shares in the firm, or a proportion of ownership. Retained earnings represents the sum of profits earned over the course of the firm's operating history net of any portion of these profits distributed to the owners in the form of dividends. Retained earnings is the total amount of profits owners choose to leave in the firm to provide working capital, fund reinvestment efforts, or initiate other productive activities. At the end of 1996, this amount equaled \$338,275 for Town Tool. Note that shareholders have a "residual" interest in the value of the firm; that is, the claims of other creditors must generally be satisfied before shareholders can claim their share of the value of the firm.

Things To Look For In The Balance Sheet

The summary balance sheet presented in the ABEL results is particularly useful in identifying trends in performance over time. One should look for items that exhibit considerable variability year to year, or are trending upward or downward. Also consider the relationship of current assets to current liabilities. A healthy firm will generally have sufficient current assets, assets that can readily be converted into cash, to meet its near-term debt payments. A rough measure of this capability is

having current assets that are at least twice as large as current liabilities. Also look at long-term assets to determine whether these items are increasing or decreasing in value, perhaps suggesting that the firm is investing in new productive assets or selling these assets. Determine whether the firm is increasing or decreasing the amount of debt it is carrying. Increasing debt levels may indicate the firm is having difficulty generating sufficient funds internally to fund its ongoing operations, requiring it to borrow money. Determine whether the firm has loans from or to shareholders, indicating a close relationship between the company and its owners. After you have identified any interesting items or general trends in the data, consult with a financial analyst to help you interpret this information. Some items you might want to investigate further on Town Tool's balance sheet include:

- **Increase in long-lived assets.** Town Tool's long-term asset holdings increased considerably between 1995 and 1996, indicating the company may be investing in new plant or equipment.
- **Loans from stockholders.** Town Tool paid off more than \$38,000 of the loans it owed to its owners. These repayments represent sums of money that could potentially be used to help fund an environmental enforcement payment.

INCOME STATEMENT

The income statement shows the firm's profits or losses generated during the course of the operating period. These earnings equal the difference between revenues and expenses. The income statement matches the amounts received from selling goods and services against the costs incurred to produce those goods and services.

Components of the Income Statement

A firm's primary income source is gross sales. To produce and sell a good or service, a business incurs expenses through the purchase of the required materials and labor. Expenses are generally broken into two categories, including cost of goods sold and overhead (or general and administrative costs).

- **Gross sales** represent income received or likely to be received (i.e., accounts receivable) as a result of selling goods or services. Sales are recognized when earned by the company (e.g., when a product is shipped to a customer) and if there is reasonable certainty that the firm will receive payment for that sale. Town Tool had gross sales of \$116,708 in 1996, much lower than gross sales in 1995 of \$1,118,814.

- **Cost of goods sold** represents the input costs of the final product that is sold. It includes costs that can be directly attributed to the production of the good or service. Common items include cost of raw materials and labor, rent paid on the manufacturing facility, and expenses related to the operation and use of related equipment. These costs are itemized in Schedule A of a company's federal income tax return and related attachments. Town Tool's cost of goods sold in 1996 totaled \$828,566.
- **Overhead, or general and administrative, expenses** represent the cost of operations not directly related to the manufacture of the product or delivery of a service. Examples include administrative and marketing costs. The "Deductions" section on page one of the tax return details a number of these expense items, including officers' compensation, interest payments, rent, depreciation, and a number of others, including an itemization of these expenses in attachments to Line 19 of the return.

For purposes of presentation, ABEL also includes in this section a summary of other income sources detailed in the "Income" section on page 1 of the tax return. Such income might include rental payments received on real estate holdings or interest payments received from loans made by the firm. Note that, although Town Tool's gross sales declined considerably from 1995 to 1996, the company recognized an equivalent amount of "other" income in 1996 to cover this decline. It would be important to investigate the reason for this apparent change in accounting practices in an ability to pay analysis.

Things To Look For In The Income Statement

The income statement provides useful information on a firm's past and likely future profitability. The difference between gross sales and cost of goods sold equals operating profit. Operating profit is an important measure of firm health because it indicates whether a firm's core operating activities are generating positive returns. Town Tool generated positive operating income in the years 1993 through 1995, but then negative operating income in 1996, apparently due to a change in the way the company classified its income in that year. The difference between the sum of all income and the sum of all expenses equals taxable income. Positive taxable income indicates the firm is generating sufficient income to meet all of its business expenses and has additional income left over. Town Tool generated positive, but variable taxable income, in every year under analysis.

Like the balance sheet, the summary income statement provides useful information to identify trends in performance. Look to see whether sales are increasing or decreasing, and whether expenses are changing in proportion. Observe whether particular expense items are variable or appear high relative to the size of the company. Determine whether profits appear to be increasing or decreasing over time. In the case of Town Tool, cost of goods sold expenses seem relatively stable, while the

"Other expenses (income)" items appear to be varying widely. These items likely merit further investigation. Once you have identified any interesting items, consult with a financial analyst to help you understand and interpret the information.

Note that certain expenses may not represent an outflow of cash from the company. The most important non-cash expense is generally depreciation. These expenses represent the annual usage of an asset. The presence of non-cash expenses has important consequences for the calculation of cash flow, as discussed below.

SUMMARY OF CASH FLOWS

The flow of income and expenses in and out of a firm may differ from the flow of cash. One source of this difference in the timing of income and expenses and cash is non-cash expenses. ABEL's cash flow summary illustrates these timing differences. To reconcile income with available cash, we start with taxable income and add back any non-cash expenses that are impounded in the taxable income amount. The resulting total represents a rough estimate of the annual pre-tax cash flow the firm is generating, as opposed to its taxable income. In most cases, this calculation will only include an allowance for depreciation expenses. In some cases, a firm will also have amortization expenses, which are non-cash expenses similar to depreciation. After subtracting out an appropriate cash allowance for taxes and other tax-related deductions, and adjusting for inflation, we can calculate a rough estimate of the after-tax cash flow being generated by the firm.

Cash flow is the lifeblood of any business. A firm with sufficient cash can easily fund its ongoing operations without acquiring additional debt; furthermore, it can easily make any interest or principal payments on debt it does maintain. As you review the cash flow summary, consider whether the firm's cash flow is positive or negative, is trending upward or downward, or is highly variable from year to year. Talk with a financial analyst to help you interpret the data. It is interesting to note for Town Tool that, while taxable income varied considerably year to year, the company's annual cash flow has been much more stable, and highly positive.

Remember that any positive cash flow amounts presented in this summary represent cash available after the firm meets all of its operating expenses. Accordingly, available cash flow is the primary consideration in ABEL's calculation of ability to pay. The model uses this information to estimate the average annual cash flow a firm is likely to generate. ABEL then projects this average cash flow amount out five years (or some alternative number of years as designated by the user) to predict the firm's future available cash flow. From this projection, the model then derives its conclusion presented in the "Ability to Pay Analysis" section of the model's results.

Appendix C
ABEL DATA ENTRY FORMS

May 1998

ABEL DATA ENTRY FORMS

ABEL is designed to allow you to enter data directly from IRS tax forms 1120, 1120 A, 1120 S, and 1065. Some users may find it easier to organize the necessary data on the data entry forms prior to running the ABEL program, as the data forms are arranged in the same order as the inputs in the ABEL model. In this appendix, we provide data entry forms for years 1992 through 1996.

- **Exhibit C-1:** ABEL Data Entry Form 1, for use with tax form 1120, 1997;
- **Exhibit C-2:** ABEL Data Entry Form 2, for use with tax form 1120, 1992 through 1996;
- **Exhibit C-3:** ABEL Data Entry Form 3, for use with tax form 1120 A, 1997;
- **Exhibit C-4:** ABEL Data Entry Form 4, for use with tax form 1120 A, 1992 through 1996;
- **Exhibit C-5:** ABEL Data Entry Form 5, for use with tax form 1120 S, 1997;
- **Exhibit C-6:** ABEL Data Entry Form 6, for use with tax form 1120 S, 1992 through 1996;
- **Exhibit C-7:** ABEL Data Entry Form 7, for use with tax form 1065, 1997;
- **Exhibit C-8:** ABEL Data Entry Form 8, for use with tax form 1065, 1995 through 1996;
- **Exhibit C-9:** ABEL Data Entry Form 9, for use with tax form 1065, 1992 through 1994.

Exhibit C-1

ABEL DATA ENTRY FORM 1: 1997 FORM 1120

Fill in data year:

DATA ENTRY FORM FOR 1997 TAX FORM 1120	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 18)	
4. Depreciation (Line 20)	
5. Depletion (Line 22)	
6. Amortization (See Attachment to Line 26, "Other Deductions;" also review other attachments for declared amortization expenses)	
7. Taxable Income Before NOL and Special Deductions (Line 28)	
8. NOL Deductions (Line 29a)	
9. Special Deductions (Line 29b)	
10. Total Tax (Line 31)	
11. Credit from Regulated Investment Companies (Line 32f)	
12. Credit for Federal Tax on Fuels (Line 32g)	
13. Cash (Line 1 on Schedule L)	
14. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L)	
15. Inventories (Line 3 on Schedule L)	
16. U.S. Government Obligations (Line 4 on Schedule L)	
17. Tax-Exempt Securities (Line 5 on Schedule L)	
18. Other Current Assets (Line 6 on Schedule L)	
19. Accounts Payable (Line 16 on Schedule L)	
20. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L)	
21. Other Current Liabilities (Line 18 on Schedule L)	
22. Loans from Stockholders (Line 19 on Schedule L)	
23. Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L)	
24. Other Liabilities (Line 21 on Schedule L)	
25. Appropriated Retained Earnings (Line 24 on Schedule L)	
26. Unappropriated Retained Earnings (Line 25 on Schedule L)	
27. Total Liability and Stockholders' Equity (Line 28 on Schedule L)	
28. Income Recorded on Books not Included in Return (Line 7 on Schedule M-1)	

Note: All Form 1120, Schedule L, entries should be taken from column (d), the right-most column.

Exhibit C-2

ABEL DATA ENTRY FORM 2: 1992-1996 FORM 1120

Fill in data year:

DATA ENTRY FORM FOR 1992 - 1996 TAX FORM 1120	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 18)	
4. Depreciation (Line 20)	
5. Depletion (Line 22)	
6. Amortization (See Attachment to Line 26, "Other Deductions;" also review other attachments for declared amortization expenses)	
7. Taxable Income Before NOL and Special Deductions (Line 28)	
8. NOL Deductions (Line 29a)	
9. Special Deductions (Line 29b)	
10. Total Tax (Line 31)	
11. Credit from Regulated Investment Companies (Line 32f)	
12. Credit for Federal Tax on Fuels (Line 32g)	
13. Cash (Line 1 on Schedule L)	
14. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L)	
15. Inventories (Line 3 on Schedule L)	
16. U.S. Government Obligations (Line 4 on Schedule L)	
17. Tax-Exempt Securities (Line 5 on Schedule L)	
18. Other Current Assets (Line 6 on Schedule L)	
19. Accounts Payable (Line 16 on Schedule L)	
20. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L)	
21. Other Current Liabilities (Line 18 on Schedule L)	
22. Loans from Stockholders (Line 19 on Schedule L)	
23. Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L)	
24. Other Liabilities (Line 21 on Schedule L)	
25. Appropriated Retained Earnings (Line 24 on Schedule L)	
26. Unappropriated Retained Earnings (Line 25 on Schedule L)	
27. Total Liability and Stockholders' Equity (Line 27 on Schedule L)	
28. Income Recorded on Books not Included in Return (Line 7 on Schedule M-1)	

Note: All Form 1120, Schedule L, entries should be taken from column (d), the right-most column.

Exhibit C-3

ABEL DATA ENTRY FORM 3: 1997 FORM 1120 A

Fill in data year:

DATA ENTRY FORM FOR 1997 TAX FORM 1120 A	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 18)	
4. Depreciation (Line 20)	
5. Amortization (See Attachment to Line 22, "Other Deductions;" also review other attachments for declared amortization expenses)	
6. Taxable Income Before NOL and Special Deductions (Line 24)	
7. NOL Deductions (Line 25a)	
8. Special Deductions (Line 25b)	
9. Total Tax (Line 27)	
10. Credit from Regulated Investment Companies (Line 28f)	
11. Credit for Federal Tax on Fuels (Line 28g)	
12. Cash (Line 1 on Part III)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2a on Part III minus Line 2b on Part III)	
14. Inventories (Line 3 on Part III)	
15. U.S. Government Obligations (Line 4 on Part III)	
16. Tax-Exempt Securities (Line 5 on Part III)	
17. Other Current Assets (Line 6 on Part III)	
18. Accounts Payable (Line 13 on Part III)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (not available on Form 1120 A)	na
20. Other Current Liabilities (Line 14 on Part III)	
21. Loans from Stockholders (Line 15 on Part III)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 16 on Part III)	
23. Other Liabilities (Line 17 on Part III)	
24. Appropriated Retained Earnings (not available on Form 1120 A)	na
25. Unappropriated Retained Earnings (Line 20 on Part III)	
26. Total Liability and Stockholders' Equity (Line 23 on Part III)	
27. Income Recorded on Books not Included in Return (Line 6 on Part IV)	

Note: All Form 1120 A Part III entries should be taken from column (b), the right-most column.

Exhibit C-4

ABEL DATA ENTRY FORM 4: 1992-1996 FORM 1120 A

Fill in data year:

DATA ENTRY FORM FOR 1992 - 1996 TAX FORM 1120 A	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 18)	
4. Depreciation (Line 20)	
5. Amortization (See Attachment to Line 22, "Other Deductions;" also review other attachments for declared amortization expenses)	
6. Taxable Income Before NOL and Special Deductions (Line 24)	
7. NOL Deductions (Line 25a)	
8. Special Deductions (Line 25b)	
9. Total Tax (Line 27)	
10. Credit from Regulated Investment Companies (Line 28f)	
11. Credit for Federal Tax on Fuels (Line 28g)	
12. Cash (Line 1 on Part III)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2a on Part III minus Line 2b on Part III)	
14. Inventories (Line 3 on Part III)	
15. U.S. Government Obligations (Line 4 on Part III)	
16. Tax-Exempt Securities (Line 5 on Part III)	
17. Other Current Assets (Line 6 on Part III)	
18. Accounts Payable (Line 13 on Part III)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (not available on Form 1120 A)	na
20. Other Current Liabilities (Line 14 on Part III)	
21. Loans from Stockholders (Line 15 on Part III)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 16 on Part III)	
23. Other Liabilities (Line 17 on Part III)	
24. Appropriated Retained Earnings (not available on Form 1120 A)	na
25. Unappropriated Retained Earnings (Line 20 on Part III)	
26. Total Liability and Stockholders' Equity (Line 22 on Part III)	
27. Income Recorded on Books not Included in Return (Line 6 on Part IV)	

Note: All Form 1120 A Part III entries should be taken from column (b), the right-most column.

Exhibit C-5

ABEL DATA ENTRY FORM 5: 1997 FORM 1120 S

Fill in data year:

DATA ENTRY FORM FOR 1997 TAX FORM 1120 S	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c plus Line 3a on Schedule K plus total gross rental income from Line 17 on Form 8825)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 13 plus 3b on Schedule K plus Line 9 on Form 8825, sum all properties)	
4. Depreciation (Line 10b on Schedule L, Column c minus Column a)	
5. Amortization (Line 11b on Schedule L, Column c minus Column a; plus Line 13b on Schedule L, Column c minus Column a)	
6. Taxable Income Before NOL and Special Deductions (Line 23 on Schedule K)	
7. NOL Deductions (not available on Form 1120 S)	na
8. Special Deductions (not available on Form 1120 S)	na
9. Total Tax (Line 22c)	
10. Credit from Regulated Investment Companies (not available on Form 1120 S)	na
11. Credit for Federal Tax on Fuels (Line 23c)	
12. Cash (Line 1 on Schedule L, Column d)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	
14. Inventories (Line 3 on Schedule L, Column d)	
15. U.S. Government Obligations (Line 4 on Schedule L, Column d)	
16. Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
17. Other Current Assets (Line 6 on Schedule L, Column d)	
18. Accounts Payable (Line 16 on Schedule L, Column d)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L, Column d)	
20. Other Current Liabilities (Line 18 on Schedule L, Column d)	
21. Loans from Stockholders (Line 19 on Schedule L, Column d)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L, Column d)	
23. Other Liabilities (Line 21 on Schedule L, Column d)	
24. Appropriated Retained Earnings (not available on Form 1120 S)	na
25. Unappropriated Retained Earnings (Line 24 on Schedule L, Column d)	
26. Total Liability and Stockholders' Equity (Line 27 on Schedule L, Column d)	
27. Income Recorded on Books not Included in Return (Line 5 on Schedule M-1)	

Exhibit C-6

ABEL DATA ENTRY FORM 6: 1992-1996 FORM 1120 S

Fill in data year:

DATA ENTRY FORM FOR 1992-1996 TAX FORM 1120 S	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c plus Line 3a on Schedule K plus total gross rental income from Line 17 on Form 8825)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 13 plus 3b on Schedule K plus Line 9 on Form 8825, sum all properties)	
4. Depreciation (Line 10b on Schedule L, Column c minus Column a)	
5. Amortization (Line 11b on Schedule L, Column c minus Column a; plus Line 13b on Schedule L, Column c minus Column a)	
6. Taxable Income Before NOL and Special Deductions (Line 23 on Schedule K)	
7. NOL Deductions (not available on Form 1120 S)	na
8. Special Deductions (not available on Form 1120 S)	na
9. Total Tax (Line 22c)	
10. Credit from Regulated Investment Companies (not available on Form 1120 S)	na
11. Credit for Federal Tax on Fuels (Line 23c)	
12. Cash (Line 1 on Schedule L, Column d)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	
14. Inventories (Line 3 on Schedule L, Column d)	
15. U.S. Government Obligations (Line 4 on Schedule L, Column d)	
16. Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
17. Other Current Assets (Line 6 on Schedule L, Column d)	
18. Accounts Payable (Line 16 on Schedule L, Column d)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 17 on Schedule L, Column d)	
20. Other Current Liabilities (Line 18 on Schedule L, Column d)	
21. Loans from Stockholders (Line 19 on Schedule L, Column d)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 20 on Schedule L, Column d)	
23. Other Liabilities (Line 21 on Schedule L, Column d)	
24. Appropriated Retained Earnings (not available on Form 1120 S)	na
25. Unappropriated Retained Earnings (Line 24 on Schedule L, Column d)	
26. Total Liability and Stockholders' Equity (Line 26 on Schedule L, Column d)	
27. Income Recorded on Books not Included in Return (Line 5 on Schedule M-1)	

Exhibit C-7
ABEL DATA ENTRY FORM 7: 1997 FORM 1065

Fill in data year:

DATA ENTRY FORM FOR 1997 TAX FORM 1065	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c plus gross income from schedules for Lines 4 and 5 plus total gross rental income from Line 17 on Form 8825)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 15 plus interest expense from schedules for Lines 4 and 5 plus sum of Line 9 for all properties on Form 8825)	
4. Depreciation (Line 9b on Schedule L, Column c minus Column a)	
5. Amortization (Line 10b on Schedule L Column c minus Column a; plus Line 12b on Schedule L, Column c minus Column a)	
6. Taxable Income Before NOL and Special Deductions (Line 1 on Page 4, "Net Income" from Analysis of Net Income)	
7. NOL Deductions (not available on Form 1065)	na
8. Special Deductions (not available on Form 1065)	na
9. Total Tax (not available on Form 1065)	na
10. Credit from Regulated Investment Companies (not available on Form 1065)	na
11. Credit for Federal Tax on Fuels (not available on Form 1065)	na
12. Cash (Line 1 on Schedule L, Column d)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	
14. Inventories (Line 3 on Schedule L, Column d)	
15. U.S. Government Obligations (Line 4 on Schedule L, Column d)	
16. Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
17. Other Current Assets (Line 6 on Schedule L, Column d)	
18. Accounts Payable (Line 15 on Schedule L, Column d)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 16 on Schedule L, Column d)	
20. Other Current Liabilities (Line 17 on Schedule L, Column d)	
21. Loans from Stockholders (Appears as All Nonrecourse Loans on Line 18 on Schedule L, Column d)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 19 on Schedule L, Column d)	
23. Other Liabilities (Line 20 on Schedule L, Column d)	
24. Appropriated Retained Earnings (Appears as Partners' Capital Accounts on Line 21 on Schedule L, Column d)	
25. Unappropriated Retained Earnings (not available on Form 1065)	na
26. Total Liability and Stockholders' Equity (Appears as Total Liabilities and Capital on Line 22 on Schedule L, Column d)	
27. Income Recorded on Books not Included in Return (not available on Form 1065)	na

Exhibit C-8

ABEL DATA ENTRY FORM 8: 1995-1996 FORM 1065

Fill in data year:

DATA ENTRY FORM FOR 1995 -1996 TAX FORM 1065	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c plus gross income from schedules for Lines 4 and 5 plus total gross rental income from Line 17 on Form 8825)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 15 plus interest expense from schedules for Lines 4 and 5 plus sum of Line 9 for all properties on Form 8825)	
4. Depreciation (Line 9b on Schedule L, Column c minus Column a)	
5. Amortization (Line 10b on Schedule L Column c minus Column a; plus Line 12b on Schedule L, Column c minus Column a)	
6. Taxable Income Before NOL and Special Deductions (Line 25a on Schedule K)	
7. NOL Deductions (not available on Form 1065)	na
8. Special Deductions (not available on Form 1065)	na
9. Total Tax (not available on Form 1065)	na
10. Credit from Regulated Investment Companies (not available on Form 1065)	na
11. Credit for Federal Tax on Fuels (not available on Form 1065)	na
12. Cash (Line 1 on Schedule L, Column d)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	
14. Inventories (Line 3 on Schedule L, Column d)	
15. U.S. Government Obligations (Line 4 on Schedule L, Column d)	
16. Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
17. Other Current Assets (Line 6 on Schedule L, Column d)	
18. Accounts Payable (Line 15 on Schedule L, Column d)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 16 on Schedule L, Column d)	
20. Other Current Liabilities (Line 17 on Schedule L, Column d)	
21. Loans from Stockholders (Appears as All Nonrecourse Loans on Line 18 on Schedule L, Column d)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 19 on Schedule L, Column d)	
23. Other Liabilities (Line 20 on Schedule L, Column d)	
24. Appropriated Retained Earnings (Appears as Partners' Capital Accounts on Line 21 on Schedule L, Column d)	
25. Unappropriated Retained Earnings (not available on Form 1065)	na
26. Total Liability and Stockholders' Equity (Appears as Total Liabilities and Capital on Line 22 on Schedule L, Column d)	
27. Income Recorded on Books not Included in Return (not available on Form 1065)	na

Exhibit C-9

ABEL DATA ENTRY FORM 9: 1992-1994 FORM 1065

Fill in data year:

DATA ENTRY FORM FOR 1992-1994 TAX FORM 1065	
1. Gross Receipts or Sales Less Returns and Allowances (Line 1c plus gross income from schedules for Lines 4 and 5 plus total gross rental income from Line 17 on Form 8825)	
2. Cost of Goods Sold (Line 2)	
3. Interest Expense (Line 15 plus interest expense from schedules for Lines 4 and 5 plus sum of Line 9 for all properties on Form 8825)	
4. Depreciation (Line 9b on Schedule L, Column c minus Column a)	
5. Amortization (Line 10b on Schedule L Column c minus Column a; plus Line 12b on Schedule L, Column c minus Column a)	
6. Taxable Income Before NOL and Special Deductions (Line 23a on Schedule K)	
7. NOL Deductions (not available on Form 1065)	na
8. Special Deductions (not available on Form 1065)	na
9. Total Tax (not available on Form 1065)	na
10. Credit from Regulated Investment Companies (not available on Form 1065)	na
11. Credit for Federal Tax on Fuels (not available on Form 1065)	na
12. Cash (Line 1 on Schedule L, Column d)	
13. Trade Notes and Accounts Receivable Less Allowance for Bad Debts (Line 2b on Schedule L, Column d)	
14. Inventories (Line 3 on Schedule L, Column d)	
15. U.S. Government Obligations (Line 4 on Schedule L, Column d)	
16. Tax-Exempt Securities (Line 5 on Schedule L, Column d)	
17. Other Current Assets (Line 6 on Schedule L, Column d)	
18. Accounts Payable (Line 15 on Schedule L, Column d)	
19. Mortgages, Notes, Bonds Payable in Less Than One Year (Line 16 on Schedule L, Column d)	
20. Other Current Liabilities (Line 17 on Schedule L, Column d)	
21. Loans from Stockholders (Appears as All Nonrecourse Loans on Line 18 on Schedule L, Column d)	
22. Mortgages, Notes, Bonds Payable in One Year or More (Line 19 on Schedule L, Column d)	
23. Other Liabilities (Line 20 on Schedule L, Column d)	
24. Appropriated Retained Earnings (Appears as Partners' Capital Accounts on Line 21 on Schedule L, Column d)	
25. Unappropriated Retained Earnings (not available on Form 1065)	na
26. Total Liability and Stockholders' Equity (Appears as Total Liabilities and Capital on Line 22 on Schedule L, Column d)	
27. Income Recorded on Books not Included in Return (not available on Form 1065)	na